

TABLE 30.—SHOWING FOR CITIES WITH 50,000 POPULATION AND OVER, AND FOR THE TOTAL OF CITIES WITH 15,000 POPULATION AND OVER, IN THE GERMAN EMPIRE, THE PROPORTION OF DEATHS FROM SPECIFIED CAUSES IN 10,000 OF MEAN POPULATION OF THE YEARS 1878 TO 1882.

Cities.	CONTAGIOUS DISEASES.										OTHER PREVAILING DISEASES.								VIOLENT DEATHS.			
	Small-pox.	Measles.	Scarlet fever.	Diphtheria and croup.	Whooping-cough.	Enteric or typhoid fever.	Typhus.	Cholera.	Dysentery.	Puerperal fever.	Other contagious diseases.	Consumption.	Pneumonia.	Other acute diseases of respiratory organs.	Apoplexy.	Inflammatory rheumatism.	Enteritis and intestinal catarrh.	Cholera morbus.	All other diseases.	Accidents.	Suicide.	Homicide.
Königsberg.....	1.7	2.9	1.3	18.2	3.0	0.7	1.8	.....	0.6	2.1	4.2	27.1	31.7	10.8	14.1	3.3	17.8	23.9	127.2	3.5	4.0	0.01
Danzig.....	0.2	3.7	6.7	20.5	2.8	2.2	1.3	.....	0.3	2.3	5.4	25.5	21.6	0.0	8.2	0.3	12.2	16.5	152.0	5.5	3.7	0.3
Breslau.....	0.1	1.0	3.1	6.1	2.5	3.5	0.5	.....	0.5	0.6	2.2	26.4	21.3	8.9	8.2	0.4	20.7	9.7	183.5	3.6	4.2	0.2
Munich.....	0.3	3.0	8.9	14.0	3.3	5.0	0.01	.....	0.1	0.5	0.6	39.1	29.1	.....	10.6	0.3	54.8	5.1	159.5	2.9	2.1	0.2
Stuttgart.....	0.02	2.5	2.2	10.4	3.7	1.8	.....	.....	0.02	1.1	0.5	27.6	21.6	1.8	0.0	0.6	7.5	18.8	110.0	2.7	2.8	0.5
Nuremberg.....	0.04	5.1	4.5	7.5	5.0	2.4	.....	.....	.....	1.2	2.6	48.7	34.5	0.9	7.3	0.0	13.0	14.6	108.7	2.4	3.0	0.3
Dresden.....	0.2	1.5	4.1	14.7	2.4	1.8	0.03	.....	0.2	1.1	0.4	37.0	13.4	2.8	7.8	0.4	6.7	10.2	135.9	2.3	4.1	0.2
Chemnitz.....	.....	2.5	2.7	12.5	3.0	2.9	.....	.....	0.09	2.0	0.04	29.7	10.0	0.6	5.8	0.7	6.7	2.6	228.6	2.5	3.7	.....
Leipzig.....	0.04	2.2	2.9	7.4	3.4	2.5	0.05	.....	0.4	1.3	1.8	30.5	17.2	9.0	7.0	0.7	15.5	8.2	102.7	3.1	5.2	0.1
Magdeburg.....	.....	3.9	3.3	9.8	2.6	2.8	0.3	.....	1.0	1.4	1.2	35.6	20.6	2.3	7.0	0.4	11.3	8.4	138.4	3.3	4.0	0.2
Hamburg.....	0.03	3.6	5.9	7.0	4.6	2.7	0.02	.....	0.2	1.2	0.4	33.8	22.0	4.1	9.0	0.4	15.2	6.0	131.0	5.3	3.8	0.1
Hanover.....	0.05	1.4	4.4	7.2	2.7	2.6	0.03	.....	0.1	1.8	0.1	39.4	17.2	.....	7.1	0.5	1.1	10.3	109.2	3.0	3.1	0.2
Bremen.....	0.1	3.8	1.5	3.8	2.8	1.1	.....	.....	0.01	1.2	1.2	39.7	27.7	4.3	6.4	0.2	3.2	9.6	98.6	3.9	3.2	0.1
Cologne.....	0.3	2.0	10.1	4.7	5.3	2.9	.....	.....	0.1	1.4	1.3	41.4	24.6	5.6	10.6	0.5	2.4	7.0	145.6	2.9	1.0	0.1
Barmen.....	.....	5.0	10.2	7.6	5.3	3.7	0.1	.....	0.1	1.2	0.1	44.5	24.8	2.2	5.0	0.2	13.7	6.5	104.3	2.9	1.8	0.2
Düsseldorf.....	0.02	1.2	8.0	8.6	3.5	3.1	0.1	.....	0.2	1.5	0.2	34.0	20.7	0.7	5.8	0.2	8.0	13.1	138.8	3.3	1.5	0.2
Elberfeld.....	0.1	3.5	8.8	6.6	4.9	5.0	.....	.....	0.04	1.0	2.0	40.0	21.4	3.3	6.0	0.4	9.3	6.5	112.1	3.3	2.2	0.4
Frankfort o. M.....	.....	1.7	2.8	14.0	4.9	1.8	0.07	.....	0.1	0.7	1.3	39.5	21.9	1.0	8.2	0.4	14.3	4.0	91.5	2.5	3.7	0.2
Strassburg i. A.....	0.4	5.3	5.8	12.7	2.6	3.6	0.01	.....	0.2	1.4	0.5	34.1	48.4	0.05	9.3	0.5	50.4	0.7	113.2	4.6	2.1	0.5
Cities with population of 15,000 and over.	0.2	2.7	5.6	10.4	3.7	4.1	0.3	0.003	0.5	1.4	1.0	35.2	22.1	5.3	8.8	0.4	14.6	11.4	130.4	3.5	3.1	0.2

a Diphtheria, 3.8; croup, 0.2.

b Diphtheria, 10.1; croup, 0.3.

## SECTION VIII.—CAUSES OF DEATH.

Of all the data relating to deaths furnished by the census, the reports of the causes of death are probably the least accurate and satisfactory. Allusion has already been made, in speaking of the data derived from the physicians' registers of death, to the very large number of cases in which the cause of death is practically unknown, but this proportion should, of course, be very much greater in the causes of death reported by non-medical persons. It must be remembered that giving a name to the cause of death does not by any means remove it from the category of the unknown. For example, a large proportion of the deaths reported as due to debility, old age, dropsy, convulsions, and disease of the heart are practically "unknown" as to cause. The returns of the causes of death in the enumerators' schedules in the present census are, however, much more valuable than those of the preceding censuses, on account of the greater extent to which these schedules have been revised by physicians, in accordance with a special request from the Census Office to that effect, in connection with directions given to the enumerators. Each of the schedules of death contains on the back a form of statement by a physician of the cause of death of the deaths reported on the reverse side, and an examination of these shows that they have been filled up and signed by physicians to a much greater extent than had been anticipated. This is especially the case in the smaller towns and rural districts. The number of individual causes of death reported upon these schedules was about three hundred.

A large number of these are, of course, merely synonymous terms, and are readily referred to their proper headings. Many, however, could only be relegated to the class "unknown". The total number thus classified on the tables is 37,133, being 49 per thousand of the whole number of deaths reported. As might be expected, over one-half of the deaths referred to unknown causes are of children under one year of age. The nomenclature and classification of diseases adopted in the tables is substantially that proposed in the recent revision of the nomenclature of the Royal College of Physicians of London, and now used in the annual reports of the registrar-general of England. It is important to bear this in mind in making comparisons between the tables of this and those of preceding censuses, as to the relative mortality caused by certain classes of disease.

A variation in the proportion of deaths reported from different causes in different localities may indicate either a difference in the actual prevalence of these causes, or a difference in the knowledge and opinions of the medical

men of these localities; and this fact is to be constantly borne in mind in the study of Tables XV and XVI, showing the relative proportion of certain diseases to the total mortality by localities, by parentage, and by groups of ages, as, for example, in the figures for croup and diphtheria; for heart disease, Bright's disease, and dropsy; for bronchitis and pneumonia, etc.

The following table shows the principal reported causes of death in the order of their frequency, each, except apoplexy, having caused over 1½ per cent. of all the deaths from known causes:

TABLE 31.—PRINCIPAL CAUSES OF DEATH, IN ORDER OF THEIR FREQUENCY.

Total deaths .....	756, 893	Per 1000 of known causes.
Deaths from unknown cause .....	37, 133	
Deaths from Consumption .....	91, 270	126.80
Pneumonia .....	63, 053	87.60
Diphtheria .....	38, 143	52.99
Heart disease .....	26, 068	36.21
Cholera infantum .....	24, 083	34.71
Still-born .....	24, 876	34.56
Deaths from Enteric fever .....	22, 854	31.75
Malarial fever .....	20, 231	28.10
Croup .....	17, 066	24.96
Convulsions .....	17, 844	24.79
Scarlet fever .....	16, 388	22.76
Dropsy .....	14, 788	20.54
Debility .....	14, 610	20.31
Old age .....	14, 168	19.68
Paralysis .....	13, 907	19.32
Dysentery .....	13, 427	18.65
Cancer .....	13, 068	18.15
Enteritis .....	12, 640	17.56
Diseases of the brain .....	12, 280	17.06
Hooping-cough .....	11, 064	15.37
Bronchitis .....	10, 984	15.20
Inflammation of the brain .....	10, 903	15.14
Diarrhœa .....	10, 825	15.08
Apoplexy .....	9, 658	13.41

The tables which show, so far as the data would permit, some of the most important relations of the reported causes of death are Tables VII, VIII, XI, XII, XIII, XIV, XV, XVI, XVIII, and XIX.

Table VII shows for the whole United States, and for each state group (excluding the large cities), with distinction of sex and age, the number of deaths reported as due to the principal causes classed systematically. Table VIII gives the same information for the 50 largest cities in the country. Tables XI and XII give the same information as Table VII, but by grand groups only, with distinction of color for the southern portion of the country, and of Irish and German parentage for the northern portions. Tables VII, XI, and XII furnish the principal data for estimating the relations which each cause of death has with locality, sex, age, and race, or with different combinations of these factors. From Table VII have been computed Tables XV and XVI.

Table XV shows the number of deaths from each cause per 1000 of total deaths of which the causes are known, with distinction of sex, in each of the grand groups; and in those grand groups in which large cities occur, this proportion is stated separately for the cities, and for the smaller towns and country which are comprehended under the general term "rural". This table, therefore, permits to a certain extent of the comparison of the relative prevalence of different diseases in different regions of the country, and also of their relative prevalence in large cities and in the rural districts.

This method of making such comparisons has many disadvantages, and care must be taken in each case in accepting the conclusions to which it leads, and to take into consideration the character of the data available. It is believed that, from the data at command, this is, upon the whole, the best method of indicating the geographical distribution of diseases in the United States. The chief source of fallacy in it, against which it is necessary to be constantly on guard, is the fact that when, in any region, any disease causes an unusual number of deaths, it diminishes the relative proportions due to all the other causes of death in that district.

Table XVI indicates the proportional effect which each cause of death has at each age, in each sex, by showing in each 1000 deaths occurring at known ages the number of deaths which occur at certain groups of ages. The conclusions from this table must also be used with care, but some deductions may be drawn from it which are fairly reliable. The larger the total number of deaths referred to each cause, as stated in the first column of this

table, the more reliable are the percentages stated in the succeeding column. It must be constantly borne in mind in using the data of this table that the number of the living population steadily diminishes at the advanced ages, and that therefore the figures in this table for the older ages may give a very erroneous idea of the relative mortality of many diseases, if considered with regard to the number of persons among whom the deaths occurred. This will be shown more especially hereafter in speaking of the mortality from cancer at different ages. So, also, care must be taken in comparing the mortality from certain diseases which are peculiar to certain ages, as, for example, the diseases of infancy and childhood, to ascertain the proportion of persons living at those ages in the localities to be compared. In short, this table is only a make-shift substitute for a proper table of mortality by ages from different diseases, in proportion to the population living at those ages.

Table XIII gives some data for estimating mortality rates by counties as the unit of area, and for the study of the relative prevalence of some important causes of death in different localities with more minuteness than could be done from the data contained in Table VII. This table shows, for each county having 10,000 inhabitants and upward, with distinction of sex, and also of color in those counties in which the colored population was 20 per cent. of the whole, the total mortality, the mortality of infants under one year of age, of children under five years of age, and the number of deaths due to certain special causes, namely: Scarlet fever, enteric fever, malarial fever, diphtheria, croup, diarrhoeal diseases, consumption, pneumonia, heart disease and dropsy, child-birth, old age, and still-births. If the data of this table were complete, that is, if all the deaths were actually and properly reported, and if it were possible to obtain similar reports for a series of years, we should be able to construct a system of geographical pathology for this country which would be of great interest and practical importance. Even as it is, with all its imperfections, it is believed that it will be found of very considerable interest to those who wish to examine the data relating to their own locality and to compare the figures with those given for their neighbors.

To illustrate the use which may be made of the data contained in Tables VII, XI, XII, XIII, XV, and XVI, the following remarks upon certain special causes of death are submitted.

To illustrate the topographical distribution of the causes of death specified in Table XIII, a series of maps of the United States are given, showing by different shades of color the different proportions which the number reported as due to these causes of death bear to the whole number of deaths reported, taking the state group as the unit of area, and in the case of diphtheria using also the county as the unit. Upon all these maps it will be observed that the Indian territory is left unshaded, which is due to the fact that no enumerations of deaths were made in this district with the exception of those referred to in table 12, p. xxxiv, of the introductory of Vol. XI.

The influence of a relatively small population of a peculiar age distribution, and of the presence of cities or large towns in certain regions, must be borne in mind in examining these maps and in drawing conclusions from them. For example, in the three counties in the state of Mississippi forming Group 1 and lying on the Gulf coast, the total population is only 21,941, and the proportion of infants and children in this population is below the average of the adjoining country. This region, therefore, has an excess of adult population, chiefly whites, the total colored population of this group of counties being only 6,433. One result of this is that this little region exhibits on many of the maps a contrast to the surrounding regions, compared with which its proportion of deaths from cancer, heart disease, consumption, and dropsy, and from the diseases of adult life generally, is comparatively high, while the mortality from diarrhoeal diseases, still-births, malarial fevers, and croup is comparatively low. So, also, the various proportions of these diseases which appear in the western territories, as in Dakota, Wyoming, etc., are probably largely due to the relatively small population and comparatively defective returns, rather than to such actual differences in the liability of persons of these localities to certain diseases, as the figures and maps would seem to indicate. In New Mexico and western Texas the proportion of deaths reported as due to certain diseases can not be relied upon, owing to the ignorance of that part of the population which is of Mexican descent, and the vague and general terms used by them in describing the causes of death, such as fever, etc.

The influence of large cities on the shading of the maps is shown in the northern Mississippi group, where the cities on the west bank cause some of the marked differences in shading on opposite sides of the river.

We will now consider some of the special causes of death, including all of those the data for which are given in Table XIII.

#### SCARLET FEVER.

The total number of deaths reported as due to scarlet fever during the census year was 16,388, of which 8,181 were males and 8,207 females. The number of deaths from this cause in each 100,000 deaths from all causes was 2,165, or a little over one-half that for 1870, namely, 4,128, and less than one-third of what it was in 1860, viz, 6,698. In England and Wales for the ten years 1870-79 the proportion was 3,674; in 1880, 3,300.

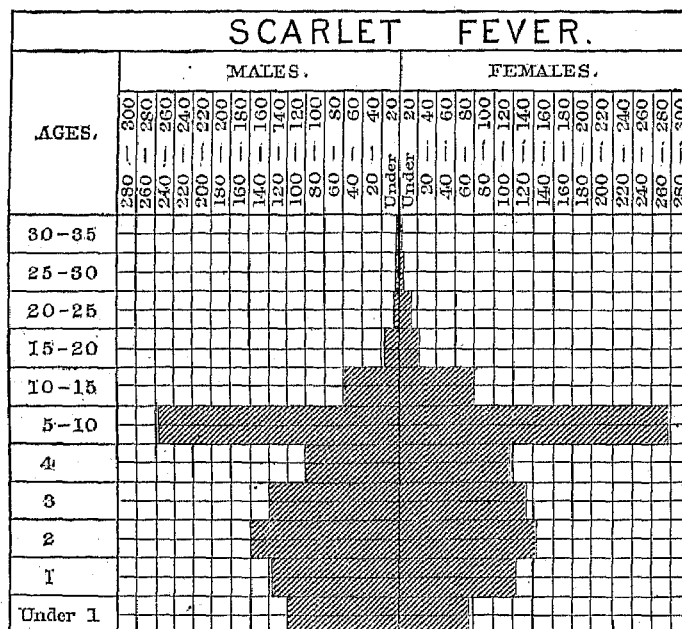
The mean age at death of those reported as dying of scarlet fever during the census year was 5. Scarlet fever is especially a disease of infancy and childhood, as will be seen from the following table and diagram, which also indicate that under the age of 5 years the proportion of deaths is greater in boys than in girls, while above this age the reverse is the case.

## MORTALITY AND VITAL STATISTICS.

TABLE 32.—SHOWING THE NUMBER OF DEATHS FROM SCARLET FEVER AT EACH GROUP OF AGES, IN EACH 1000 DEATHS REPORTED AS CAUSED BY THIS DISEASE.

Ages.	Males.	Females.	Ages.	Males.	Females.	Ages.	Males.	Females.
Under 1 year .....	100.83	73.36	15-20 years .....	14.68	21.48	60-65 years .....	0.49	0.12
1 year .....	137.71	123.71	20-25 years .....	5.76	11.84	65-70 years .....	0.12	0.73
2 years .....	161.36	145.51	25-30 years .....	4.29	6.84	70-75 years .....	0.37	0.61
3 years .....	141.14	130.74	30-35 years .....	2.33	3.17	75-80 years .....	0.37	0.12
4 years .....	109.78	116.21	35-40 years .....	0.86	2.93	80-85 years .....	0.12	0.24
Total under 5 years..	650.82	589.60	40-45 years .....	1.10	1.46	85-90 years .....		
5-10 years .....	255.33	278.81	45-50 years .....	0.49	0.40	90-95 years .....		
10-15 years .....	61.90	80.57	50-55 years .....	0.74	0.47	95 and over .....		
			55-60 years .....	0.25	0.49	Unknown .....	2.33	1.83

FIG. 23.—DEATHS FROM SCARLET FEVER AT CERTAIN GROUPS OF AGES IN 1000 DEATHS CAUSED BY THIS DISEASE.



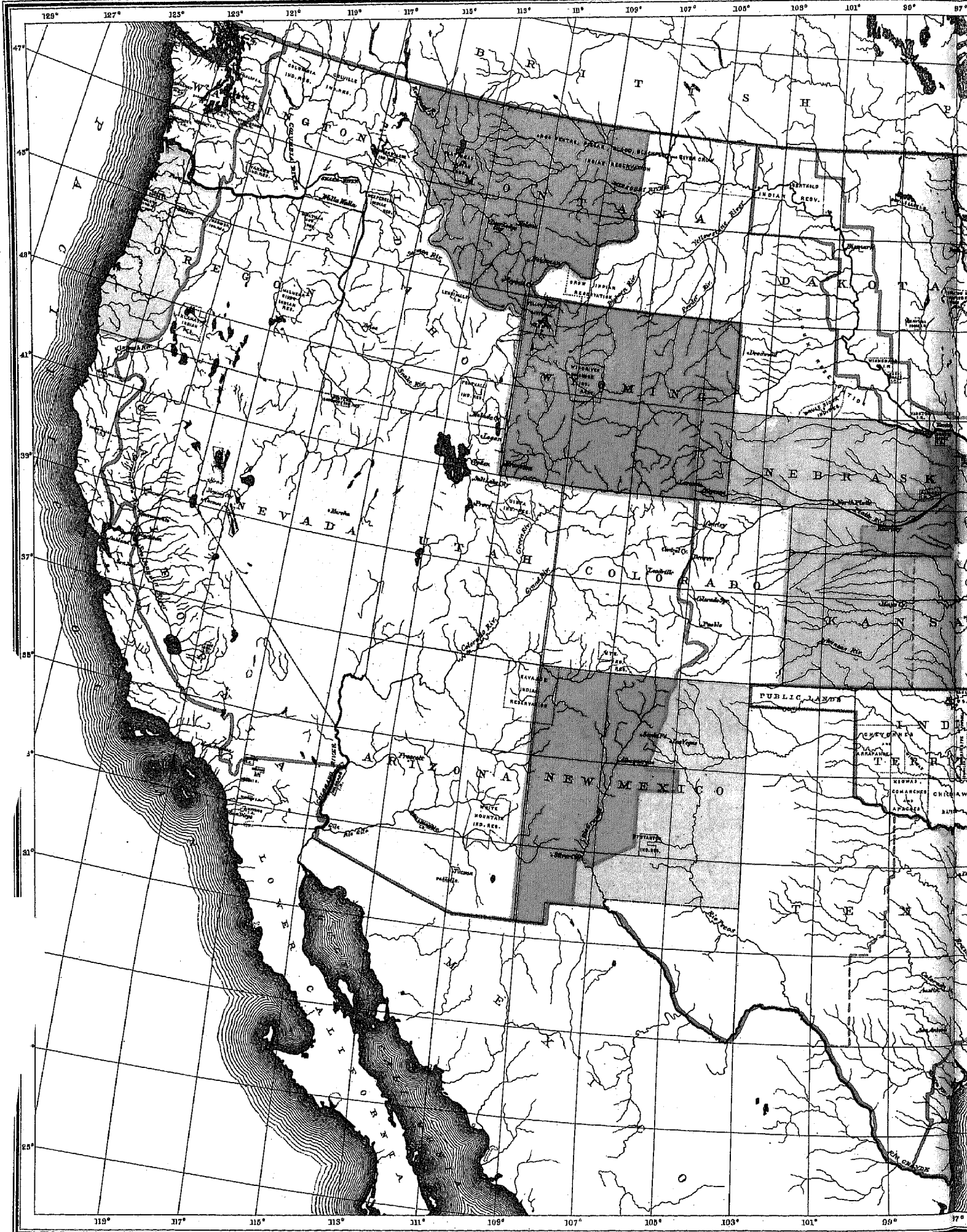
Scarlet fever caused a greater proportion of deaths in the large cities (26.7) than in the rest of the country (21.6); and in those parts of the country in which the distinctions of color and of parentage were made, it caused a much greater proportion of the deaths among the whites (20.9) than among the colored (3.9), and greater among the Germans (30.1) than among the Irish (24.0), or than among the rest of the white population. The influence of the large cities in causing a greater mortality from this disease is most marked between the ages of 5 and 15. The proportionate mortality under 5 years is greatest for children of Irish parentage. These and other relations of the deaths from this disease to age groups are shown in the following table:

TABLE 33.—SHOWING FOR CERTAIN GROUPS OF AGES THE NUMBER OF DEATHS FROM SCARLET FEVER, AND THE PROPORTION OF DEATHS FROM THIS CAUSE TO THE WHOLE NUMBER OF DEATHS AT THE CORRESPONDING AGE GROUPS, WITH DISTINCTION OF SEX, AND, FOR CERTAIN REGIONS, OF COLOR AND PARENTAGE.

Deaths from scarlet fever in—		DEATHS.				PROPORTION IN 1,000,000 DEATHS AT CERTAIN AGES.			
		Under 5.	5-15.	15-65.	65 and over.	Under 5.	5-15.	15-65.	65 and over.
The United States.....	{ M. F.	5,312 4,800	2,590 2,944	252 404	8 14	35,948 37,260	81,183 91,295	1,851 2,021	152 291
Rural .....	{ M. F.	8,861 3,485	1,051 2,232	200 341	7 10	34,972 36,791	72,883 82,053	1,976 3,004	156 250
Cities .....	{ M. F.	1,451 1,395	630 712	46 63	1 4	36,390 40,781	124,404 141,130	1,443 2,245	129 444
White in 10 Grand Groups.....	{ M. F.	2,241 2,049	1,088 1,258	101 148	1 6	32,711 35,091	84,178 99,003	1,593 2,275	40 260
Colored in 10 Grand Groups.....	{ M. F.	117 109	54 61	16 13	..... 2	5,159 5,452	11,973 12,181	996 663	..... 485
Irish parentage in 14 Grand Groups.....	{ M. F.	376 353	165 189	19 27	1 3	57,475 63,972	106,178 131,616	1,509 2,330	248 768
German parentage in 14 Grand Groups.....	{ M. F.	870 341	224 213	16 27	..... .....	47,442 52,429	130,233 130,755	1,585 3,852	..... .....



DEPARTMENT OF THE INTERIOR.



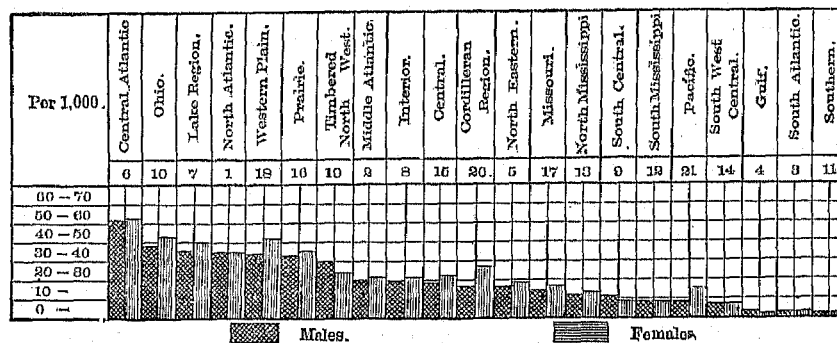


The geographical distribution of the disease is shown by Map No. 2, and by the following table:

TABLE 34.—SHOWING FOR RURAL AND CITIES, WITH DISTINCTION OF SEX, AND FOR WHITE AND COLORED, IRISH AND GERMAN PARENTAGE, THE PROPORTION OF DEATHS FROM SCARLET FEVER IN 1000 DEATHS FROM KNOWN CAUSES.

Grand Groups.	RURAL.		CITIES.		White.	Colored.	Irish parentage.	German parentage.
	Male.	Female.	Male.	Female.				
Total.....	21.0	22.2	25.2	28.4	20.9	8.9	24.0	30.1
1. North Atlantic Coast region.....	28.7	27.3	44.0	47.3			34.2	30.8
2. Middle Atlantic Coast region.....	16.5	19.1	22.4	22.7	23.4	5.7	17.9	10.3
3. South Atlantic Coast region.....	2.0	2.1			2.2	2.1		
4. Gulf Coast region.....	1.7	1.5	2.5	3.2	2.4	1.0		
5. Northeastern Hills and Plateaus.....	18.7	19.5	4.2	13.3			19.9	72.2
6. Central Appalachian region.....	51.6	53.5	63.1	50.5			41.2	35.3
7. Region of the Great Northern Lakes.....	34.3	33.3	38.7	48.5			25.7	39.2
8. The Interior Plateau.....	19.8	21.6	22.1	23.0	24.1	6.2	20.5	22.9
9. Southern Central Appalachian region.....	11.4	9.0			11.6	5.7		
10. The Ohio River Belt.....	41.8	44.1	33.3	39.6	48.8	14.8	39.1	56.7
11. Southern Interior Plateau.....	1.4	1.1			2.0	0.8		
12. South Mississippi River Belt.....	9.5	9.5			15.9	4.5		
13. North Mississippi River Belt.....	14.9	15.7	4.7	8.2			11.0	15.2
14. Southwest Central region.....	8.5	8.7			9.8	3.4		
15. Central region, plains and prairies.....	18.9	21.7	36.0	42.7	23.7	5.8		
16. The Prairie region.....	32.3	35.9					26.4	26.5
17. Missouri River Belt.....	14.3	15.4	42.3	55.1			23.0	20.2
18. Region of the Western Plains.....	34.0	44.5	27.7	22.1			26.0	53.3
19. Heavily-timbered region of the Northwest.....	20.7	24.8					7.0	79.2
20. Cordilleran region.....	18.1	26.7					9.5	14.1
21. Pacific Coast region.....	14.8	21.0	3.9	4.8			5.6	1.6

FIG. 24.—DEATHS FROM SCARLET FEVER IN GRAND GROUPS, WITH DISTINCTION OF SEX, PER 1000 OF ALL DEATHS OF WHICH CAUSES ARE KNOWN.



It appears that during the census year scarlet fever was most prevalent in the northern part of the United States, and especially on the North Atlantic coast, the interior of New York and Pennsylvania, the lake coast, the Ohio valley, the northern part of Wisconsin and Minnesota, Kansas, Nebraska, Wyoming, the western part of Montana, and the coast region of Oregon. The mortality from this disease was very low in the southern states with the exception of that part of Arkansas lying on the Mississippi river, but this may be due to a great extent to the large proportion of colored population in this region, a class in which the mortality from this disease appears to be very low.

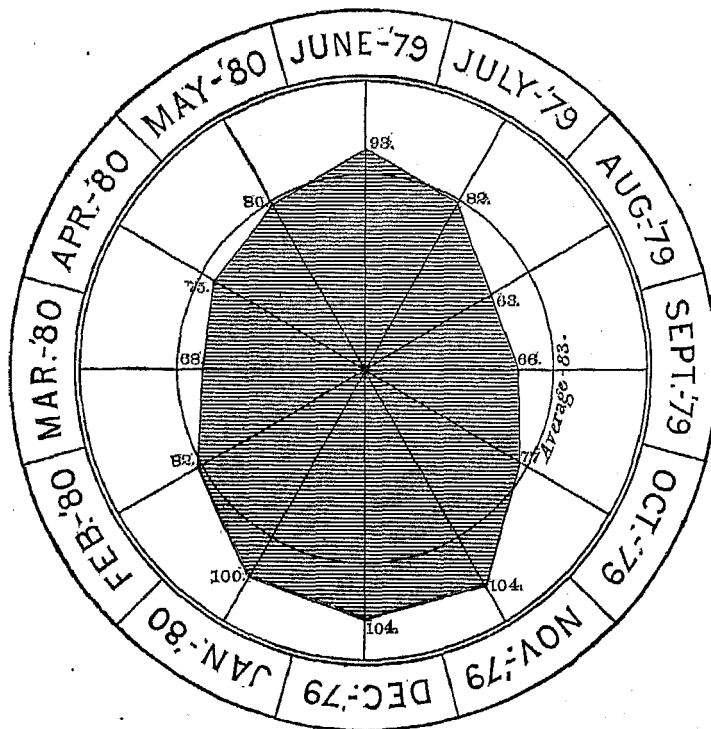
Although the whole history of scarlet fever in the United States indicates that the disease has always been much rarer in the south than in the north, and the contrast between these two regions was, if any thing, even more marked at the census of 1870 than at that of 1880, it is not to be explained on the ground that scarlet fever can not prevail in warm climates, although the fact that the larger parts of Asia and Africa are comparatively free from this disease, taken in connection with its distribution in the United States, would at first sight seem to warrant some such conclusion.

Dr. Hirsch points out, however, that scarlet fever has often been epidemic in the tropical countries of South America, and also that in many cases in temperate latitudes it is among the rarest of diseases. Nor does its diffusion seem to be directly influenced by the season or weather, the elevation of the locality, the geological or physical characters of the soil, or by the cleanliness of the locality. When the disease has once become established

in a place it is very apt to recur in cycles of five or six years, due probably to the accumulation within that period of a sufficient number of persons susceptible to the influence of its causes to produce an epidemic. We have no reason to suppose that it is propagated in any other way than by the transmission of particles of matter from a person suffering from the disease. Its contagium has an extremely persistent vitality, and may linger among articles of clothing or bedding for a number of years with its powers but little if any impaired.

The following diagram indicates the relative prevalence of scarlet fever in the different months of the year in the 31 registration cities. It will be seen that the greatest mortality from this cause was in the winter months, and next to these in May, June, and July, and that it was least in August, September, October, March, and April:

FIG. 25.—DEATHS FROM SCARLET FEVER, BY MONTHS, IN 31 REGISTRATION CITIES.



### ENTERIC OR TYPHOID FEVER.

Enteric fever is reported as the cause of 22,854 deaths during the census year, being 30.19 per 1000 deaths from all causes. This is a smaller proportion than that shown for preceding censuses, the figures being, for 1870, 45.07; for 1860, 48.8; and for 1850, 40.55 per 1000. In England and Wales for the year 1880 the corresponding proportion was 12.72, and for the ten years 1870-'79, 15.69. Of the deaths from this cause in the United States 11,821 were males and 11,033 females, indicating, if the number of cases is proportionate to the number of deaths, that sex has no special influence on this disease, the difference, taken in connection with the excess of males in the living population, being within the limits of probable error.

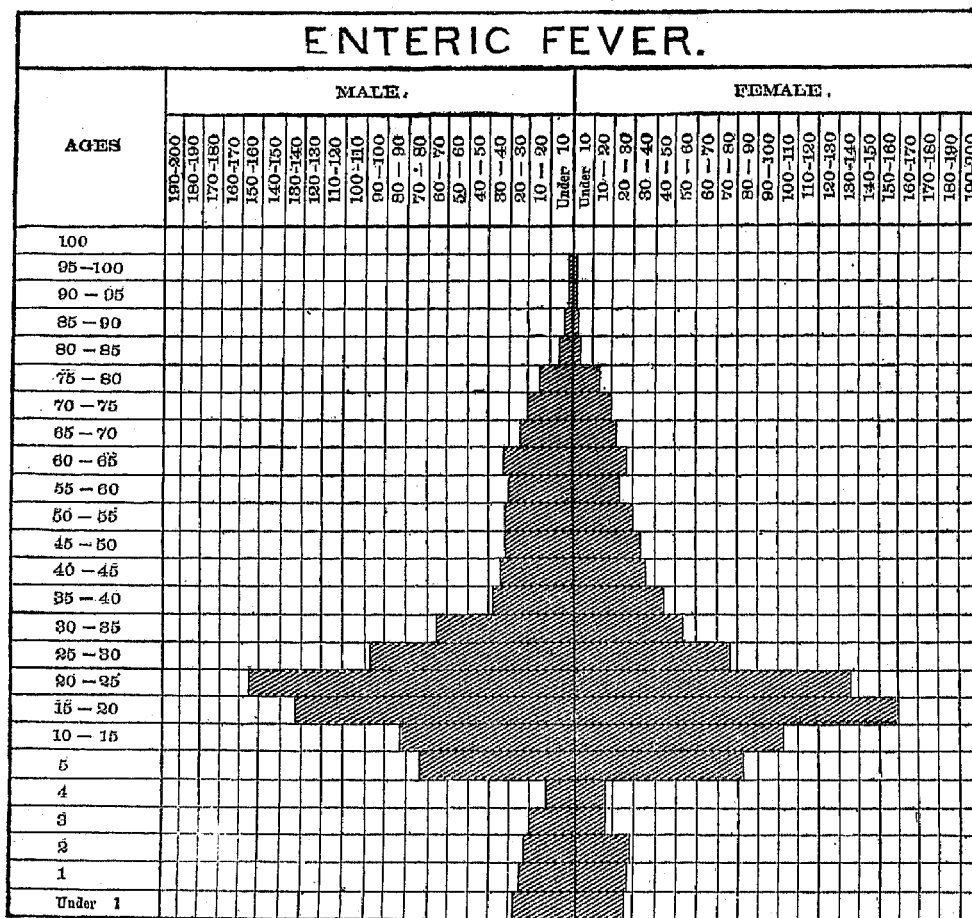
The mean age at death of those reported as dying of enteric fever during the census year was 27 years. The following table and diagram show the proportion of deaths from this cause at various ages:

TABLE 35.—SHOWING THE NUMBER OF DEATHS FROM ENTERIC FEVER AT EACH GROUP OF AGES IN EACH 1000 DEATHS REPORTED AS CAUSED BY THIS DISEASE.

Ages.	Males.	Females.	Ages.	Males.	Females.	Ages.	Males.	Females.
Under 1 year .....	20.68	27.63	15-20 years.....	131.23	160.89	60-65 years.....	33.00	27.45
1 year.....	27.73	28.18	20-25 years.....	157.59	125.53	65-70 years.....	26.88	21.00
2 years.....	23.73	28.91	25-30 years.....	99.43	78.90	70-75 years.....	20.07	20.00
3 years.....	21.09	17.91	30-35 years.....	65.40	56.54	75-80 years.....	14.80	14.18
4 years.....	14.97	17.09	35-40 years.....	39.55	48.00	80-85 years.....	0.21	6.54
Total under 5 years..	117.20	119.72	40-45 years.....	34.19	37.72	85-90 years.....	2.21	2.91
5-10 years.....	74.59	86.54	45-50 years.....	32.06	34.91	90-95 years.....	0.34	0.55
10-15 years.....	81.90	104.35	50-55 years.....	32.74	31.00	95 and over.....	0.34	0.09
			55-60 years.....	30.28	23.18	Unknown.....	5.86	2.91



FIG. 26.—DEATHS FROM ENTERIC FEVER AT CERTAIN GROUPS OF AGES IN 1000 DEATHS CAUSED BY THIS DISEASE.



The greater part of the deaths from enteric fever occur between the ages of 5 and 40, the maximum occurring in females between the ages of 15 and 20, and in males between 20 and 25. It is probable, however, that the susceptibility to the disease and the mortality from it in those not protected by an attack in youth is quite as great at ages above 40 as below it; in fact, the diagram indicates that there is an increasing mortality in proportion to the living population of those ages from 45 to 80.

In the 50 largest cities enteric fever is reported as causing 16.7 in each 1000 deaths from specified causes, while in the rest of the country it caused 36 per 1000, indicating that it is not a disease of sewered cities having a general water-supply to such an extent as it is of those places where wells and privies are chiefly used. The same influence appears if we take the deaths by ages. In each 1,000,000 deaths under 5 years enteric fever caused in the large cities 2,633 deaths in males and 2,514 in females, while at the same ages it caused in the rest of the country 11,531 deaths in males and 13,185 in females. For the ages 5 to 15 the figures are, in cities, males 41,293, females 46,184; in the rural districts, males 60,817, females 68,635; for the ages 15 to 65 in cities, males 32,287, females 31,463; in the rural districts, males 64,069, females 54,290.

In those parts of the United States where the distinction of color was made, it is reported as causing a somewhat greater proportion of deaths among the whites than among the blacks, the figures being, for the whites 33.9 and for the colored 31.7 per 1000 deaths from specified causes. Up to the age of 15 the number of deaths from this cause is proportionately greater among the colored. It caused a smaller proportion of deaths than the average among those of Irish parentage, while those of German parentage suffered a greater loss from it. The following table shows these and other relations of this disease:

TABLE 36.—SHOWING FOR CERTAIN GROUPS OF AGES THE NUMBER OF DEATHS FROM ENTERIC FEVER, AND THE PROPORTION OF DEATHS FROM THIS CAUSE TO THE WHOLE NUMBER OF DEATHS AT THE CORRESPONDING AGE GROUPS, WITH DISTINCTION OF SEX, AND, FOR CERTAIN REGIONS, OF COLOR AND PARENTAGE.

Deaths from enteric fever in—		DEATHS.				PROPORTION IN 1,000,000 DEATHS AT CERTAIN AGES.			
		Under 5.	5-15.	15-65.	65 and over.	Under 5.	5-15.	15-65.	65 and over.
The United States.....	{ M. 1,378 F. 1,317	1,378 1,317	1,840 2,100	7,707 6,866	893 718	9,169 10,323	57,674 65,122	56,626 49,656	15,846 14,047
Rural.....	{ M. 1,273 F. 1,281	1,273 1,281	1,628 1,867	6,078 5,983	767 641	11,531 13,185	80,817 88,635	64,069 54,290	17,114 16,423
Cities.....	{ M. 105 F. 86	105 86	212 233	1,029 883	66 77	2,633 2,514	41,293 46,184	32,287 31,463	8,516 8,553
White in 10 Grand Groups.....	{ M. 600 F. 610	600 610	822 910	3,811 3,500	436 380	9,634 10,447	63,598 71,620	60,115 53,802	17,084 16,487
Colored in 10 Grand Groups.....	{ M. 254 F. 305	254 305	348 305	816 822	61 50	11,190 15,255	77,162 78,874	50,704 41,937	14,520 12,127
Irish parentage in 14 Grand Groups.....	{ M. 18 F. 13	18 13	39 50	359 235	35 38	2,751 2,366	25,097 34,318	28,512 22,863	8,678 9,720
German parentage in 14 Grand Groups.....	{ M. 45 F. 36	45 36	79 86	445 403	39 31	5,770 5,535	45,030 62,798	47,025 58,211	12,074 18,231

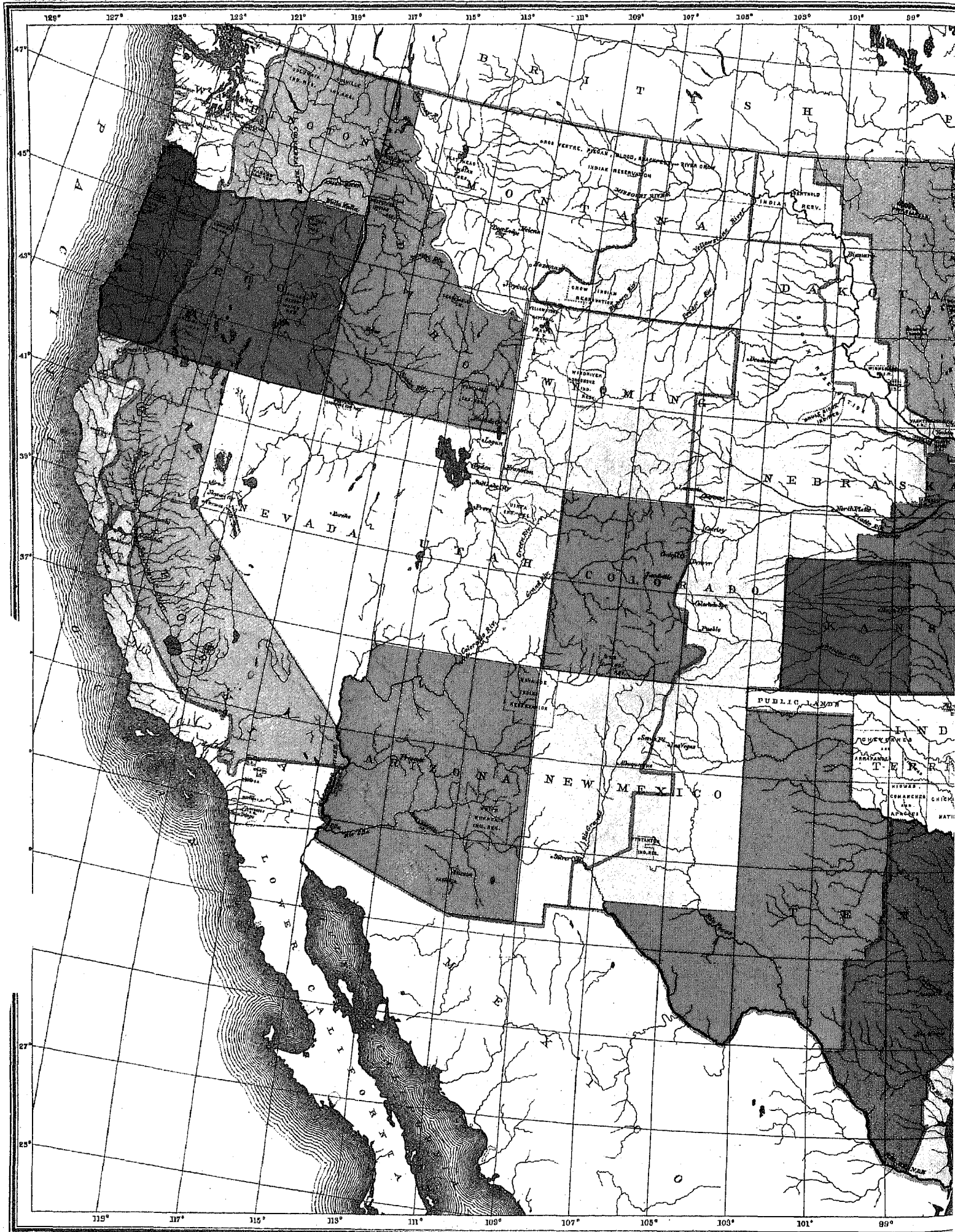
Map No. 9 shows the geographical distribution of these deaths in proportion to the total number of deaths. From this it appears that typhoid fever was most prevalent in the central portions of the United States, and more especially in the Appalachian regions of North Carolina, Georgia, Alabama, and Tennessee, in central Ohio, the whole of Indiana, the southern part of Missouri, the eastern part of Texas, the western half of Kansas, and in Oregon. The proportion of deaths from this cause was comparatively low in New England, central Pennsylvania, the Mississippi valley, the gulf coast, the lake coast, the northern part of Wisconsin and Minnesota, and the western territories. The proportion of deaths from this cause was probably much greater in the western portion of New Mexico than the map would indicate, a considerable proportion of the comparatively large number of deaths in this region reported as due to fever, and some of those reported as due to malarial fever, being probably due to typhoid.

The following table shows the distinction of these deaths in relation to grand groups:

TABLE 37.—SHOWING FOR RURAL AND CITIES, WITH DISTINCTION OF SEX, AND FOR WHITE AND COLORED, IRISH AND GERMAN PARENTAGE, THE PROPORTION OF DEATHS FROM ENTERIC FEVER IN 1000 DEATHS FROM KNOWN CAUSES.

Grand Groups.	RURAL.		CITIES.		White.	Colored.	Irish parentage.	German parentage.
	Male.	Female.	Male.	Female.				
Total.....	36.1	35.9	16.7	16.7	33.9	31.7	17.4	20.6
1. North Atlantic Coast region.....	21.3	18.5	17.3	15.2	.....	.....	15.7	16.9
2. Middle Atlantic Coast region.....	27.0	22.1	9.3	10.9	13.4	22.4	6.6	13.5
3. South Atlantic Coast region.....	34.1	31.9	34.5	20.1	43.3	25.4	.....	.....
4. Gulf Coast region.....	30.1	31.2	7.4	8.0	21.8	23.0	.....	.....
5. Northeastern Hills and Plateaus.....	25.5	20.3	22.3	15.8	.....	.....	19.9	30.0
6. Central Appalachian region.....	21.7	21.1	12.3	18.8	.....	.....	12.5	23.0
7. Region of the Great Northern Lakes.....	23.6	26.8	14.9	19.6	.....	.....	23.1	26.7
8. The Interior Plateau.....	32.6	34.4	20.1	25.1	31.1	31.1	32.3	40.8
9. Southern Central Appalachian region.....	47.1	46.4	.....	.....	47.6	44.3	.....	.....
10. The Ohio River Belt.....	44.3	40.8	26.5	19.4	39.0	24.2	23.8	36.5
11. Southern Interior Plateau.....	40.0	43.9	.....	.....	46.9	33.4	.....	.....
12. South Mississippi River Belt.....	18.4	21.8	.....	.....	24.4	16.6	.....	.....
13. North Mississippi River Belt.....	38.3	41.7	20.6	17.9	.....	.....	34.0	51.8
14. Southwest Central region.....	46.9	49.1	.....	.....	51.3	34.6	.....	.....
15. Central region, plains and prairies.....	44.2	40.2	52.1	44.9	43.5	36.4	.....	.....
16. The Prairie region.....	43.9	41.9	.....	.....	.....	.....	34.2	37.4
17. Missouri River Belt.....	39.4	42.1	25.4	11.0	.....	.....	23.0	56.3
18. Region of the Western Plains.....	41.1	40.5	.....	.....	.....	.....	26.0	34.5
19. Heavily-timbered region of the Northwest.....	30.2	26.1	.....	.....	.....	.....	24.8	23.4
20. Cordilleran region.....	33.3	27.4	.....	.....	.....	.....	23.8	21.2
21. Pacific Coast region.....	28.2	43.2	21.8	25.1	.....	.....	23.9	29.6

DEPARTMENT OF THE INTERIOR





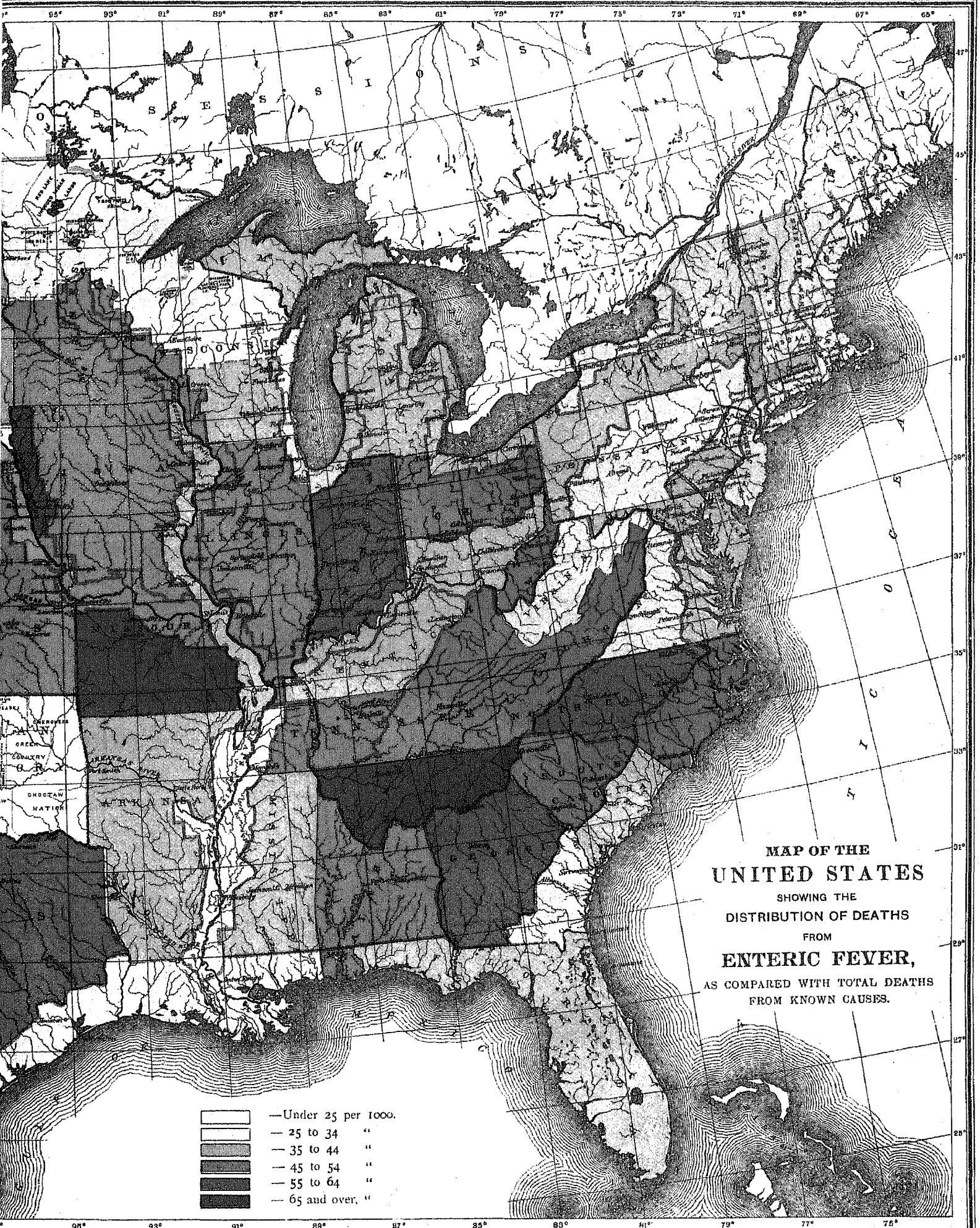
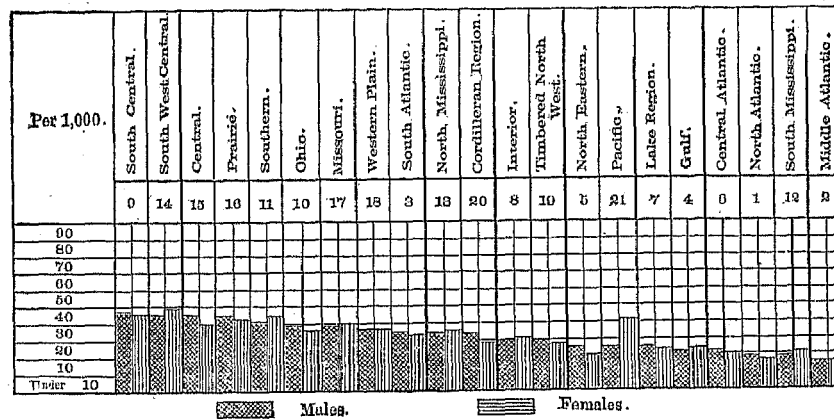
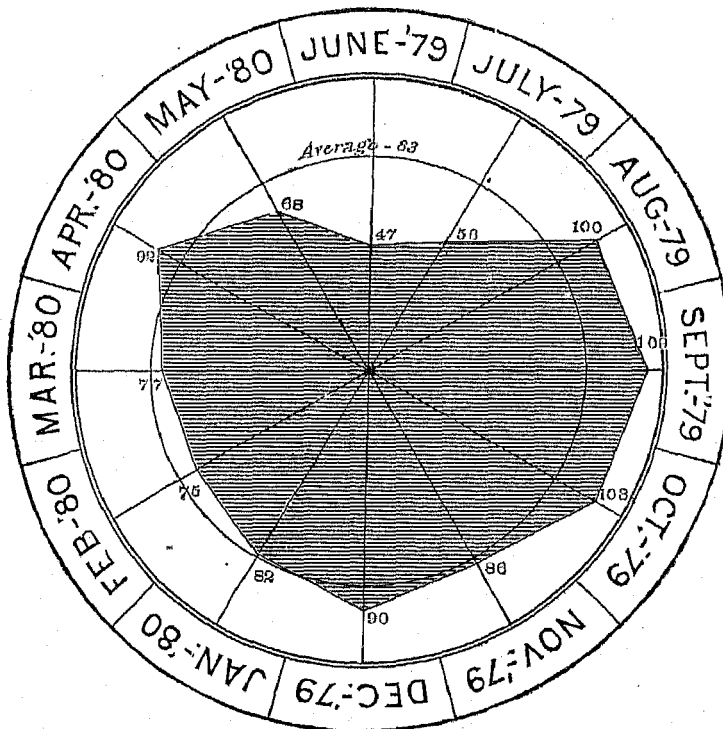


FIG. 27.—DEATHS FROM ENTERIC FEVER, IN GRAND GROUPS, PER 1000 DEATHS FROM KNOWN CAUSES.



The following diagram shows the distribution of the deaths reported as due to enteric fever in 31 registration cities in relation to month of death. It will be seen that the proportion was greatest in the months of August, September, and October, indicating the origin of the common name for this disease, viz, "autumnal fever". There is also a marked rise in the proportion of deaths from this cause in the month of April, and the smallest number of deaths occurs in May, June, and July:

FIG. 28.—DEATHS FROM ENTERIC FEVER, BY MONTHS, IN 31 REGISTRATION CITIES.



## MALARIAL FEVERS.

Under the term "malarial fevers" have been grouped in the tabulations those causes of death reported as due to intermittent, remittent, congestive, and bilious fevers. The total number of deaths reported as due to these causes during the census year was 20,231, of which 10,263 were of males and 9,968 of females. They caused 2,673 out of every 100,000 deaths from all causes, as against 2,374 in the census of 1870, and 3,976 in that of 1860.

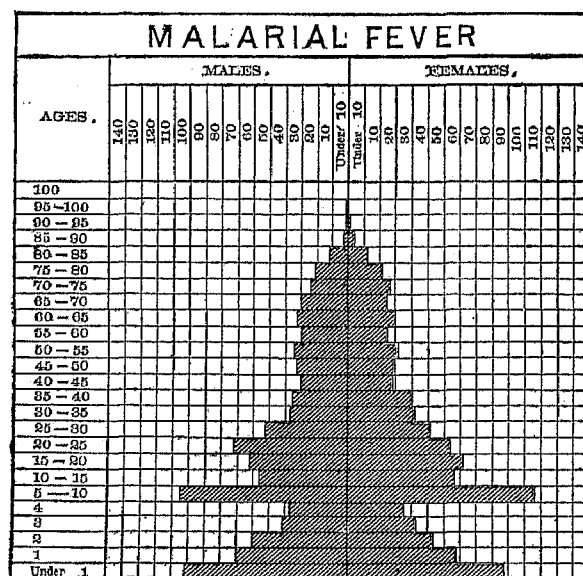
The mean age at death of those reported as dying from malarial fevers during the census year was 24 years.

The following table and diagram show the relations of the deaths to age reported as due to these causes:

TABLE 38.—SHOWING THE NUMBER OF DEATHS FROM MALARIAL FEVER AT EACH GROUP OF AGES IN EACH 1000 DEATHS REPORTED AS CAUSED BY THIS DISEASE.

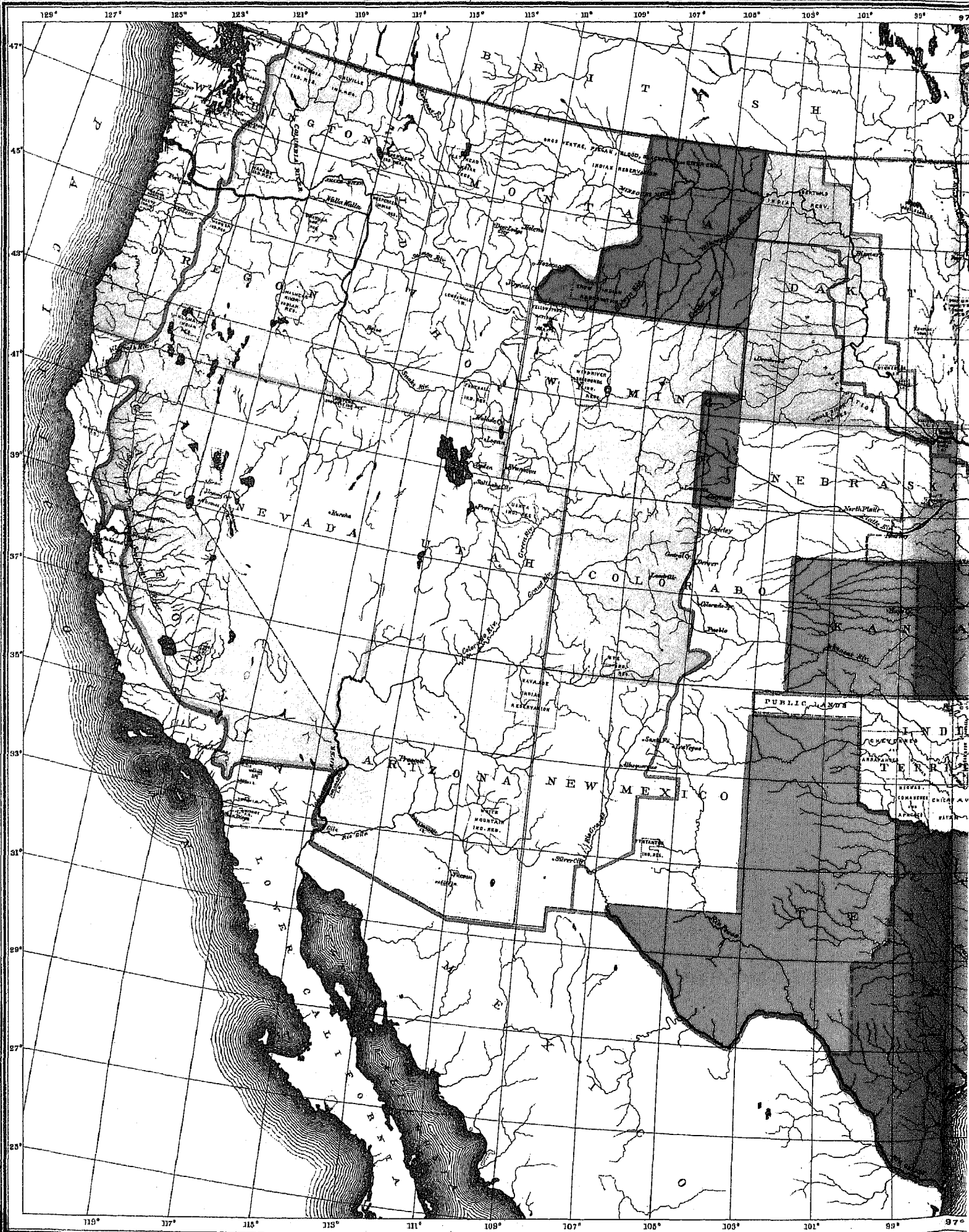
Ages.	Males.	Females.	Ages.	Males.	Females.	Ages.	Males.	Females.
Under 1 year .....	101.60	97.05	15-20 years .....	62.96	72.76	60-65 years .....	33.44	30.03
1 year .....	70.22	68.63	20-25 years .....	72.08	65.20	65-70 years .....	31.58	24.49
2 years .....	60.80	55.73	25-30 years .....	52.27	52.30	70-75 years .....	25.60	27.11
3 years .....	42.86	43.94	30-35 years .....	37.85	42.43	75-80 years .....	22.65	22.57
4 years .....	37.27	35.27	35-40 years .....	35.50	41.02	80-85 years .....	11.57	13.91
Total under 5 years..	312.74	300.61	40-45 years .....	31.97	29.03	85-90 years .....	4.61	5.74
5-10 years .....	105.91	116.29	45-50 years .....	33.93	30.03	90-95 years .....	1.57	2.22
10-15 years .....	56.00	67.42	50-55 years .....	35.99	31.34	95 and over .....	1.37	1.51
			55-60 years .....	30.40	23.38	Unknown .....	6.47	4.53

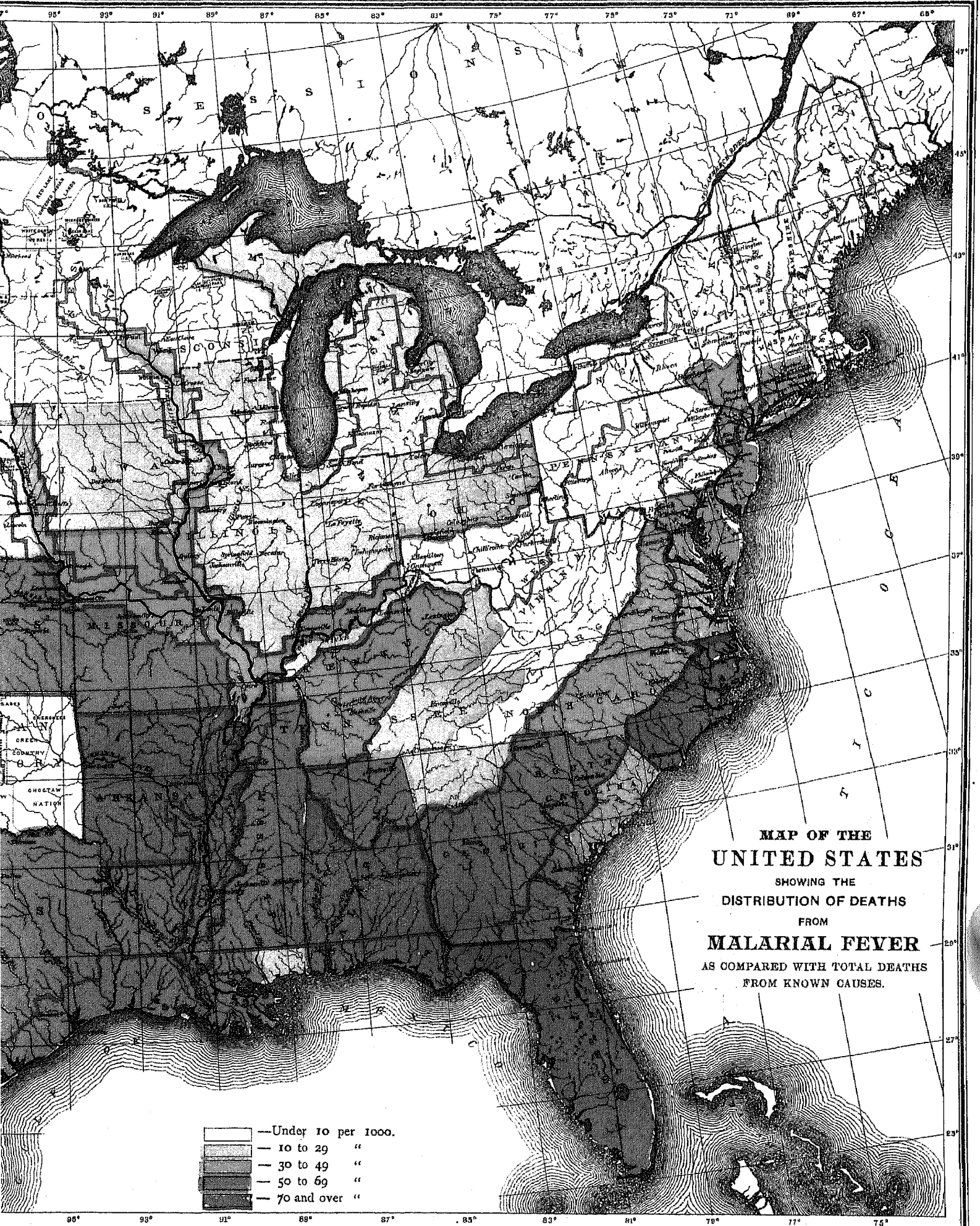
FIG. 29.—DEATHS FROM MALARIAL FEVER AT CERTAIN GROUPS OF AGES IN 1000 DEATHS CAUSED BY THIS DISEASE.



It will be seen that the greater proportion of deaths occurs at the younger ages, gradually diminishing until the age of 40, after which it remains tolerably uniform to the age of 75 or 80. As the number of the living population is steadily diminishing at these latter ages, it follows that the tendency to death from this class of causes steadily increases with advancing age. The proportion of deaths from malarial fevers per 1000 deaths from specified causes is, as a rule, much less in the large cities (11.8) than it is in the rest of the country (32.8). A marked exception to this occurs in the Missouri River belt (Grand Group 17), where the proportion of deaths from these causes in Kansas City (males 79.1, females 88.2) is much greater than in the rest of this region (males 40.9, females 46.0). In those regions where the distinctions of white and colored are made, the proportion of deaths from these causes is decidedly greater in the colored (48.3) than in the whites (30.7), but this rule by no means holds good in all the grand groups. The excess in the proportion of deaths from these causes among the colored population occurs throughout all the groups of ages. The proportion of deaths among those of Irish parentage (12.9) and of German parentage (14.1), is comparatively low, owing to the fact that the great majority of persons of these nationalities are located in non-malarious regions. The following table indicates these and some other relations of deaths from this class of causes, by groups of ages:







# CAUSES OF DEATH.

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TABLE 39.—SHOWING FOR CERTAIN GROUPS OF AGES THE NUMBER OF DEATHS FROM MALARIAL FEVER, AND THE PROPORTION OF DEATHS FROM THIS CAUSE TO THE WHOLE NUMBER OF DEATHS AT THE CORRESPONDING AGE GROUPS, WITH DISTINCTION OF SEX, OF RURAL AND CITIES, AND, FOR CERTAIN REGIONS, OF COLOR AND PARENTAGE.

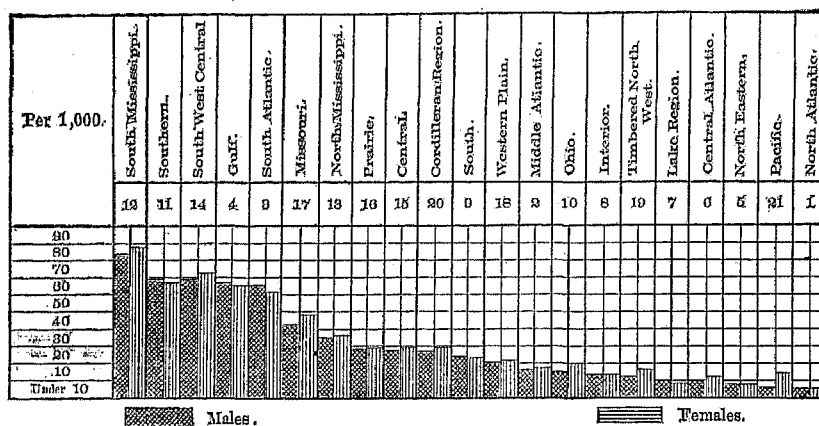
Deaths from malarial fever in—		DEATHS.				PROPORTION IN 1,000,000 DEATHS AT CERTAIN AGES.			
		Under 5.	5-15.	15-65.	65 and over.	Under 5.	5-15.	15-65.	65 and over.
The United States .....	{ M. F.	3, 189 2, 983	1, 051 1, 820	4, 848 4, 149	1, 000 968	21, 229 23, 362	51, 760 56, 592	31, 940 30, 006	19, 194 20, 152
Rural .....	{ M. F.	2, 893 2, 737	1, 537 1, 086	3, 849 3, 714	912 878	26, 204 29, 315	57, 417 61, 081	39, 927 33, 701	20, 350 22, 495
Cities .....	{ M. F.	296 240	114 187	400 435	97 90	7, 423 7, 102	22, 205 27, 155	15, 057 15, 500	12, 516 9, 997
White in 10 Grand Groups .....	{ M. F.	1, 509 1, 443	700 910	2, 245 2, 180	484 508	21, 982 24, 718	61, 586 71, 020	35, 413 33, 511	19, 631 22, 040
Colored in 10 Grand Groups .....	{ M. F.	936 843	480 401	795 776	170 155	41, 268 42, 165	106, 430 98, 043	49, 486 39, 590	40, 467 37, 594
Irish parentage in 14 Grand Groups .....	{ M. F.	62 39	42 43	167 149	59 47	9, 477 7, 068	27, 027 29, 944	13, 263 12, 855	14, 620 12, 036
German parentage in 14 Grand Groups .....	{ M. F.	72 51	29 33	145 153	42 31	9, 232 7, 841	16, 860 20, 258	15, 323 21, 820	13, 972 13, 231

The geographical distribution of the deaths reported as due to malarial fever is indicated by Map No. 11, and by the following table and diagram:

TABLE 40.—SHOWING FOR RURAL AND CITIES, WITH DISTINCTION OF SEX, AND FOR WHITE AND COLORED, IRISH AND GERMAN PARENTAGE, THE PROPORTION OF DEATHS FROM MALARIAL FEVER IN 1000 DEATHS FROM KNOWN CAUSES.

Grand Groups.	RURAL.		CITIES.		White.	Colored.	Irish parentage.	German parentage.
	Male.	Female.	Male.	Female.				
Total .....	32.1	33.4	11.8	11.8	30.7	48.3	12.9	14.1
1. North Atlantic Coast region .....	5.8	4.9	2.9	3.1	.....	.....	3.5	0.2
2. Middle Atlantic Coast region .....	26.3	27.1	13.1	14.0	16.8	22.1	16.2	12.9
3. South Atlantic Coast region .....	73.7	67.5	11.9	11.1	82.8	50.9	.....	.....
4. Gulf Coast region .....	75.0	81.2	51.2	36.8	72.0	58.7	.....	.....
5. Northeastern Hills and Plateaus .....	7.2	7.1	10.6	13.3	.....	.....	10.1	5.2
6. Central Appalachian region .....	10.1	11.5	13.6	13.4	.....	.....	12.2	7.2
7. Region of the Great Northern Lakes .....	12.0	9.9	8.1	8.3	.....	.....	9.8	6.5
8. The Interior Plateau .....	18.0	18.3	4.3	3.9	11.0	29.5	0.0	5.8
9. Southern Central Appalachian region .....	27.3	23.1	.....	.....	23.3	24.1	.....	.....
10. The Ohio River Belt .....	19.0	23.4	8.4	9.7	18.2	16.5	11.0	13.3
11. Southern Interior Plateau .....	69.6	60.1	.....	.....	71.4	67.9	.....	.....
12. South Mississippi River Belt .....	83.5	87.7	.....	.....	84.0	86.7	.....	.....
13. North Mississippi River Belt .....	80.9	40.0	23.1	25.0	.....	.....	28.9	32.4
14. Southwest Central region .....	69.8	73.2	.....	.....	72.6	65.8	.....	.....
15. Central region, plains and prairies .....	28.2	20.0	24.8	30.6	29.1	25.1	.....	.....
16. The Prairie region .....	28.7	29.7	.....	.....	.....	.....	23.4	18.0
17. Missouri River Belt .....	40.9	46.0	79.1	88.2	.....	.....	53.7	33.5
18. Region of the Western Plains .....	23.4	23.1	3.4	16.5	.....	.....	26.0	63.4
19. Heavily-timbered region of the Northwest .....	12.2	16.1	.....	.....	.....	.....	17.1	7.4
20. Cordilleran region .....	27.8	20.3	.....	.....	.....	.....	25.4	3.5
21. Pacific Coast region .....	8.3	14.6	4.0	8.0	.....	.....	5.6	0.2

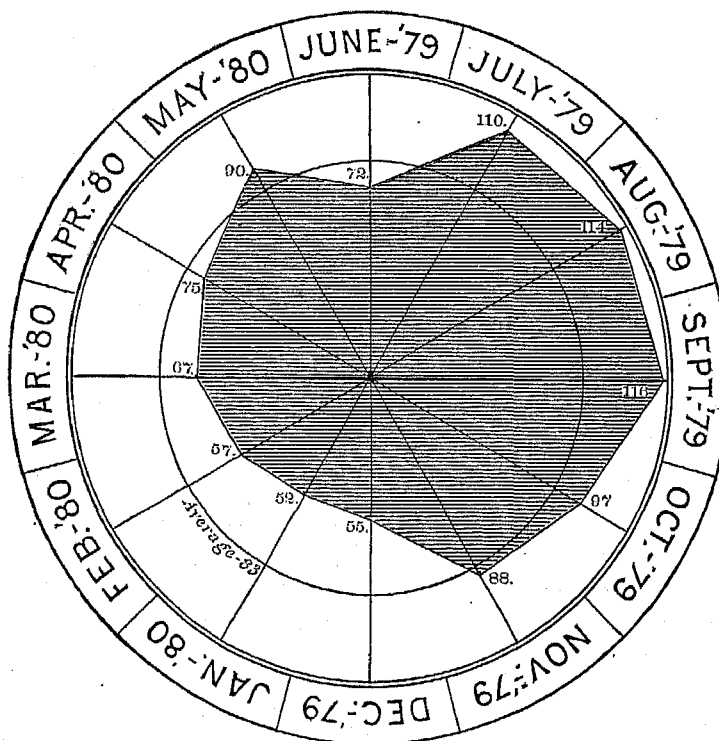
FIG. 30.—DEATHS FROM MALARIAL FEVER IN 21 GRAND GROUPS, WITH DISTINGUITION OF SEX, PER 1000 DEATHS FROM KNOWN CAUSES.



It will be seen from the foregoing table and diagram that malarial fever is especially prevalent in the southern portion of the United States, upon the middle and southern Atlantic coast, and on the lowlands and river-bottoms. An excessive amount of deaths from this cause is reported in the western portion of New Mexico, but is not indicated by the map; this excess is probably due largely to errors in the reports of causes of death made by an ignorant class of people and in a foreign language, and no doubt a very considerable part of the deaths thus reported was due to enteric or typhoid fever. It will be found interesting to compare the map showing the distribution of this disease with those indicating the distribution of enteric fever, consumption, and cancer. In a general way it may be said that where the proportion of deaths from enteric fever, from cancer, or from consumption is the highest, there the proportion of deaths from malarial fever is the lowest, and *vice versa*.

The following diagram shows the distribution of the deaths reported in the 31 registration cities as due to malarial fever with reference to the month of death. The proportion is least in the winter and spring months, and greatest in the latter part of the summer and in the autumn, being in August and September twice as great as in December, January, and February:

FIG. 31.—DEATHS FROM MALARIAL FEVER, BY MONTHS, IN 31 REGISTRATION CITIES.



## DIPHTHERIA AND CROUP.

The majority of the leading medical authorities of the present day are disposed to consider diphtheria and croup as being, in the main, merely different names for the same affection according as it affects more especially the mouth, throat, and nose, or the larynx and windpipe; membranous croup being considered to be, in a great



majority of cases, at all events, a true diphtheritic affection of the larynx. It has been thought best, however, to tabulate the figures as returned by the enumerators and physicians, although the statistics of the two should be studied and considered together.

The total number of deaths reported to have been caused by these diseases during the census year was, for diphtheria, 38,143; and for croup, 17,966. Diphtheria caused 5,039 deaths out of each 100,000 deaths from all causes, as against 1,280 in 1870, and 422 in 1860. Croup caused 2,374 deaths of every 100,000 deaths from all causes, as against 2,172 in 1870, 3,859 in 1860, and 3,314 in 1850. The great increase in the proportion of deaths from diphtheria in 1880 over those reported in the preceding census years may be partly due to the fact that physicians now report as diphtheria cases which twenty or thirty years ago would have been returned as croup, as indicated by the fact that the proportion of deaths from croup for the two last censuses has been considerably less than it was for the two preceding ones. Nevertheless, this would account for but a small part of the increase, and it is certain that diphtheria has been unusually prevalent in the northern portions of the United States for several years, of which the census year is perhaps a fair average. In England, during the year 1880, the deaths from diphtheria were 532 per 100,000 deaths from all causes; and for the ten years from 1870 to 1879, they were 569 per 100,000. The proportion of deaths from diphtheria is greater in females than in males, while the reverse is the case in the deaths reported as due to croup.

The mean age at death of those reported as dying of diphtheria during the census year was 6, and of croup 2. The following tables and diagrams show the relations of these causes of death to age:

TABLE 41.—SHOWING THE NUMBER OF DEATHS FROM DIPHTHERIA AT EACH GROUP OF AGES IN EACH 1000 DEATHS REPORTED AS CAUSED BY THIS DISEASE.

Ages.	Males.	Females.	Ages.	Males.	Females.	Ages.	Males.	Females.
Under 1 year.....	83.33	65.40	15-20 years.....	23.02	28.81	60-65 years.....	0.75	0.82
1 year.....	108.23	96.06	20-25 years.....	9.06	9.69	65-70 years.....	0.75	0.52
2 years.....	132.65	114.25	25-30 years.....	4.93	5.40	70-75 years.....	0.80	0.46
3 years.....	119.10	110.49	30-35 years.....	3.48	3.81	75-80 years.....	0.43	0.20
4 years.....	109.20	105.28	35-40 years.....	2.20	3.08	80-85 years.....	0.21	0.36
Total under 5 years..	552.51	401.47	40-45 years.....	1.39	2.01	85-90 years.....	0.05	0.15
5-10 years.....	300.06	322.13	45-50 years.....	1.29	1.30	90-95 years.....	0.11	0.10
10-15 years.....	95.38	126.31	50-55 years.....	1.07	1.20	95 and over.....	.....	0.10
			55-60 years.....	1.07	1.10	Unknown.....	2.09	1.34

FIG. 32.—DEATHS FROM DIPHTHERIA AT CERTAIN GROUPS OF AGES IN 1000 DEATHS CAUSED BY THIS DISEASE.

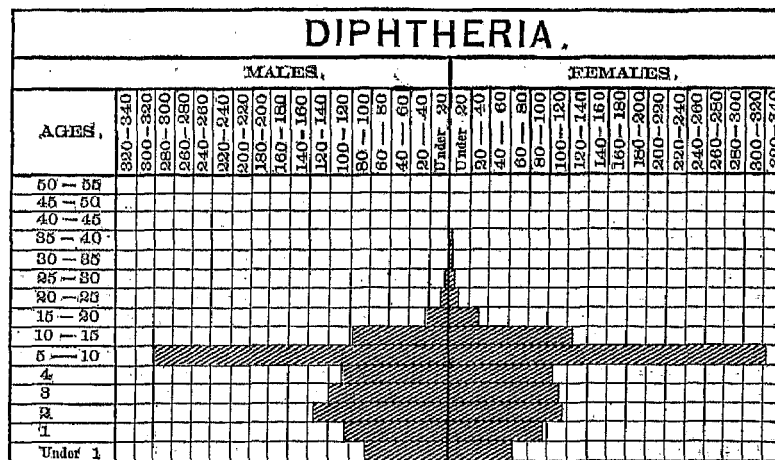
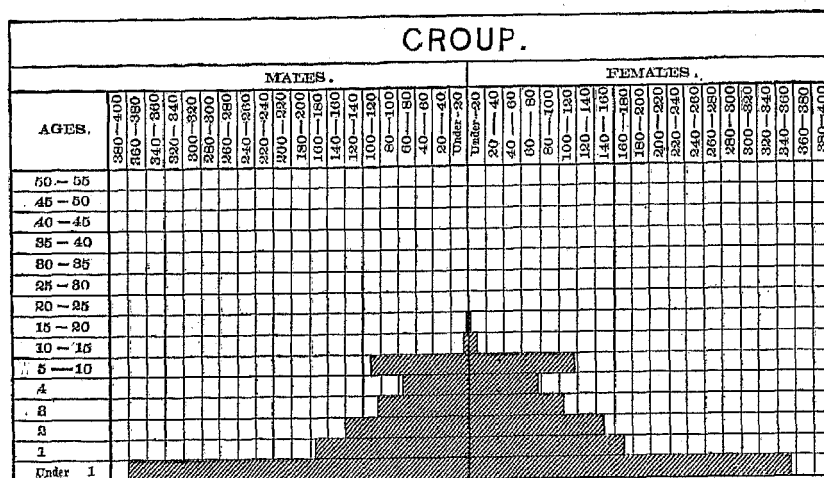


TABLE 42.—SHOWING THE NUMBER OF DEATHS FROM CROUP AT EACH GROUP OF AGES IN EACH 1000 DEATHS REPORTED AS CAUSED BY THIS DISEASE.

Ages.	Males.	Females.	Ages.	Males.	Females.	Ages.	Males.	Females.
Under 1 year.....	380.68	354.40	15-20 years.....	1.03	2.20	60-65 years.....	0.10	0.40
1 year.....	173.90	171.28	20-25 years.....	0.72	0.73	65-70 years.....	.....	0.24
2 years.....	140.70	153.71	25-30 years.....	0.51	0.98	70-75 years.....	0.31	0.85
3 years.....	103.60	106.26	30-35 years.....	0.31	0.37	75-80 years.....	0.21	0.24
4 years.....	75.95	77.96	35-40 years.....	0.51	0.49	80-85 years.....	.....	0.24
Total under 5 years..	874.82	863.61	40-45 years.....	0.51	0.61	85-90 years.....	0.10	.....
5-10 years.....	111.31	118.46	45-50 years.....	0.51	0.49	90-95 years.....	0.10	.....
10-15 years.....	8.43	9.39	50-55 years.....	0.31	0.24	95 and over.....	.....	.....
			55-60 years.....	0.21	0.37	Unknown.....	2.36	1.95

## MORTALITY AND VITAL STATISTICS.

FIG. 33.—DEATHS FROM CROUP AT CERTAIN GROUPS OF AGES IN 1000 DEATHS  
CAUSED BY THIS DISEASE.

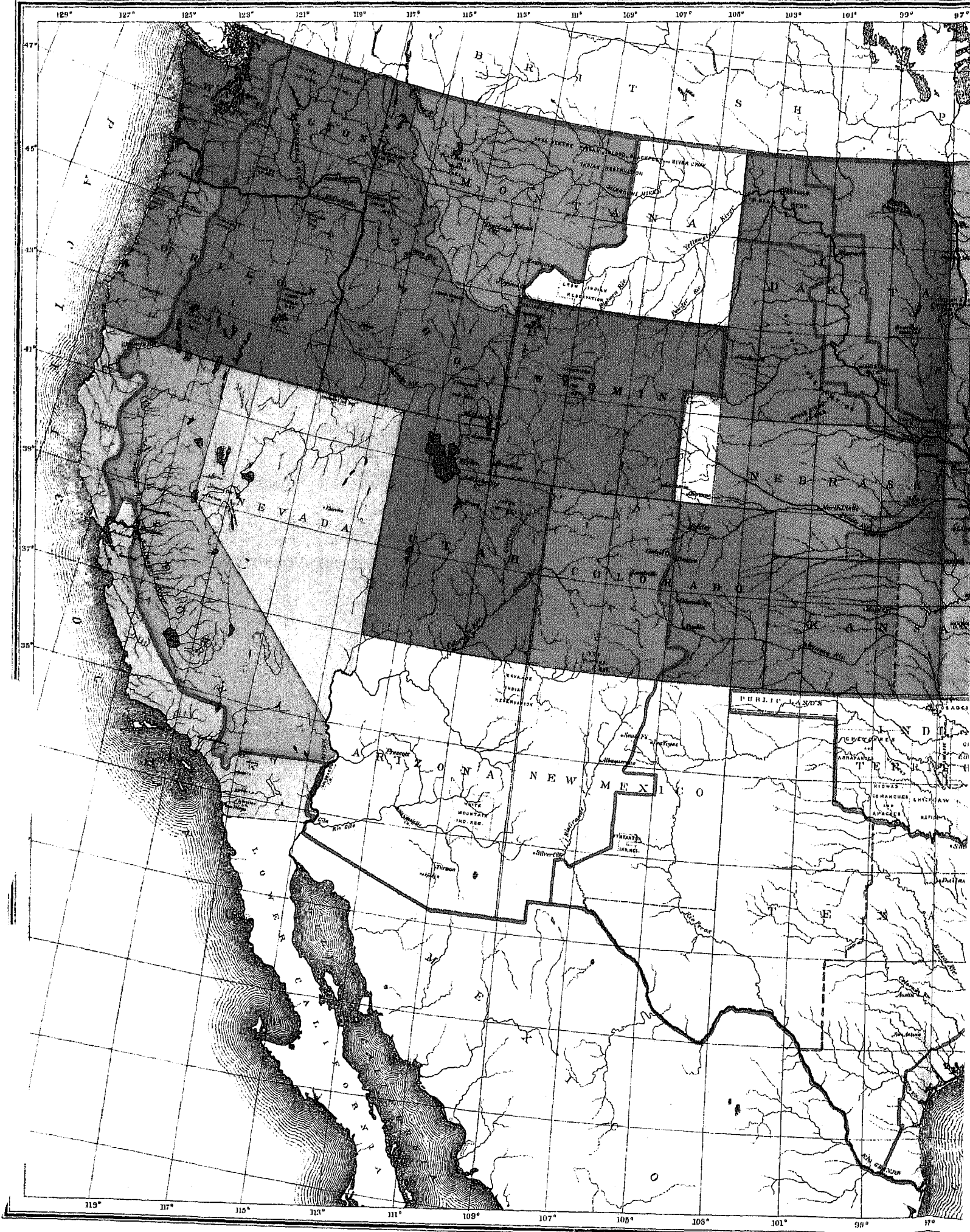


It will be seen that the proportion of deaths reported as due to croup is very much greater in infancy than that of those reported as due to diphtheria, while the proportion of deaths occurring between the ages of 5 to 10 and 10 to 15 is very much greater in diphtheria than in croup. Out of each 1000 deaths from croup in males, 874 occurred under 5 years of age, while in diphtheria the corresponding proportion is 552.51. The mortality from both croup and diphtheria is greater in the rural districts than in the large cities, in the whites than in the colored in those of German than in those of Irish descent. For each 1,000,000 deaths reported in the 50 large cities occurring between the ages of 5 and 15, diphtheria caused in males 182,509, and in females 222,398 deaths; while in the rural districts the corresponding figures were, males, 240,838, females, 278,656. The difference is even greater in the case of croup. In the large cities, out of each 1,000,000 deaths in males under 5 years of age, croup is reported as causing 34,208 deaths, while in the rural districts the corresponding number is 64,745. Diphtheria is reported as causing an excessive mortality in children of German parentage, especially between the ages of 5 to 15, in which out of each 1,000,000 of deaths, it caused in males 320,930, and in females 400,859 deaths, or between 30 and 40 per cent. of all the deaths at that group of ages. A corresponding excess appears in the deaths from croup in those of German parentage at the ages of 5 to 15, but it is very much smaller.

The following tables show these and some other age relations of these diseases:

TABLE 43.—SHOWING FOR CERTAIN GROUPS OF AGES THE NUMBER OF DEATHS FROM DIPHTHERIA, AND THE PROPORTION OF DEATHS FROM THIS CAUSE TO THE WHOLE NUMBER OF DEATHS AT THE CORRESPONDING AGE GROUP, WITH DISTINCTION OF SEX, OF RURAL AND CITIES, AND, FOR CERTAIN REGIONS, OF COLOR AND PARENTAGE

Deaths from diphtheria in—	DEATHS.				PROPORTION IN 1,000,000 DEATHS AT CERTAIN AGES.			
	Under 5.	5-15.	15-65.	65 and over.	Under 5.	5-15.	15-65.	65 and over.
The United States..... { M.	10,317	7,384	928	44	68,653	231,451	6,818	
..... { F.	9,537	8,702	1,128	38	74,757	269,842	8,158	
Rural..... { M.	8,289	6,447	841	41	75,080	240,838	8,069	
..... { F.	7,588	7,580	1,029	34	81,272	278,656	9,337	
Cities..... { M.	2,028	937	87	3	50,860	182,509	2,730	
..... { F.	1,040	1,122	99	4	56,977	222,398	3,528	
White in 10 Grand Groups..... { M.	3,730	2,320	288	11	54,445	179,497	4,543	
..... { F.	3,572	2,813	389	13	61,174	221,301	5,980	
Colored in 10 Grand Groups..... { M.	588	223	42	9	25,925	49,446	2,614	
..... { F.	484	271	60		24,208	54,113	3,061	
Irish parentage in 14 Grand Groups..... { M.	556	372	57	3	84,980	239,382	4,527	
..... { F.	540	407	60	4	97,862	283,426	5,176	
German parentage in 14 Grand Groups..... { M.	768	552	80	1	98,474	320,930	8,454	
..... { F.	725	653	91	3	111,470	400,859	12,983	





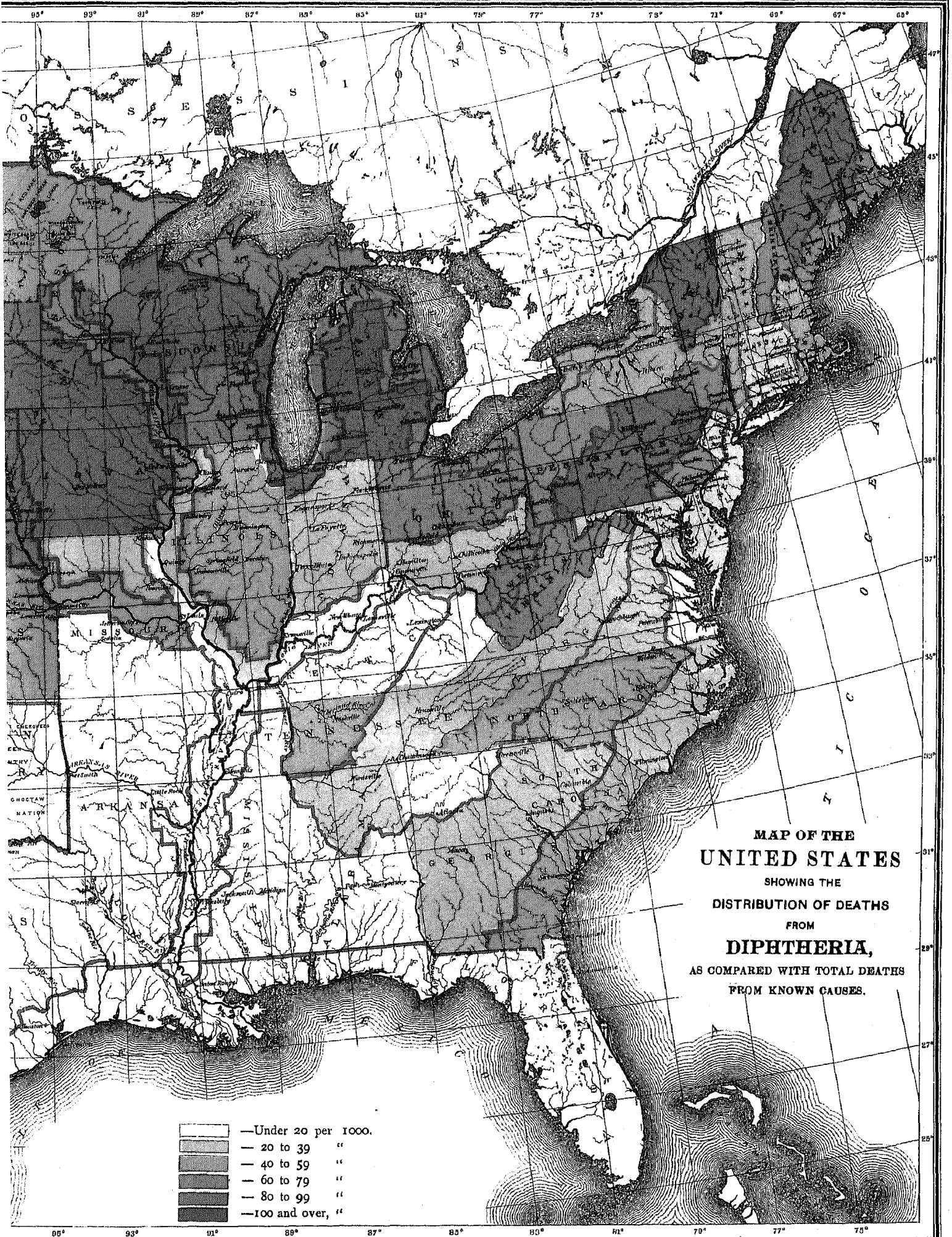


TABLE 44.—SHOWING FOR CERTAIN GROUPS OF AGES THE NUMBER OF DEATHS FROM CROUP, AND THE PROPORTION OF DEATHS FROM THIS CAUSE TO 1,000,000 DEATHS AT THE CORRESPONDING AGE GROUPS, WITH DISTINCTION OF SEX, OF RURAL AND CITIES, AND, FOR CERTAIN REGIONS, OF COLOR AND PARENTAGE.

Deaths from croup in—		DEATHS.				PROPORTION IN 1,000,000 DEATHS AT CERTAIN AGES.			
		Under 5.	5-15.	15-65.	65 and over.	Under 5.	5-15.	15-65.	65 and over.
The United States.....	{ M. F.	8,512 7,070	1,105 1,048	46 57	7 13	50,642 55,400	36,517 32,499	338 412	133 271
Rural.....	{ M. F.	7,148 5,011	871 812	37 47	5 13	64,745 63,311	32,598 29,851	355 427	112 333
Cities.....	{ M. F.	1,364 1,168	204 230	9 10	2	84,208 94,145	57,265 46,770	282 356	258
White in 10 Grand Groups.....	{ M. F.	4,181 3,454	408 439	13 24	4 6	61,028 50,153	38,530 34,551	252 309	162 200
Colored in 10 Grand Groups.....	{ M. F.	1,004 926	30 41	4 6	1 1	48,234 40,316	6,052 8,187	240 306	238 243
Irish parentage in 14 Grand Groups.....	{ M. F.	321 272	63 55	4		49,068 40,293	40,541 38,801	318	
German parentage in 14 Grand Groups.....	{ M. F.	383 363	92 71	3 5	3	40,109 55,812	53,488 48,585	317 713	1,280

The geographical distribution of the deaths reported as due to these causes for the whole United States is shown by Maps Nos. 3 and 4, and also by the following tables and diagrams:

TABLE 45.—SHOWING FOR RURAL AND CITIES, WITH DISTINCTION OF SEX, AND FOR WHITE AND COLORED, IRISH AND GERMAN PARENTAGE, THE PROPORTION OF DEATHS FROM DIPHTHERIA IN 1000 DEATHS FROM KNOWN CAUSES.

Grand Groups.	RURAL.		CITIES.		White.	Colored.	Irish parentage.	German* parentage.
	Male.	Female.	Male.	Female.				
Total.....	54.4	60.0	30.0	41.5	30.8	17.4	42.1	72.7
1. North Atlantic Coast region.....	52.0	55.5	40.2	47.2			43.2	73.9
2. Middle Atlantic Coast region.....	27.3	20.9	30.6	35.7	34.2	14.3	31.5	20.2
3. South Atlantic Coast region.....	52.6	47.6	26.2	10.0	60.1	30.8		
4. Gulf Coast region.....	11.1	11.9	10.0	14.4	14.5	7.0		
5. Northeastern Hills and Plateaus.....	60.7	77.4	18.1	18.2			43.1	46.3
6. Central Appalachian region.....	96.5	113.0	47.0	33.6			67.5	115.1
7. Region of the Great Northern Lakes.....	78.2	63.2	72.8	34.1			31.7	108.0
8. The Interior Plateau.....	67.1	68.5	33.2	30.6	64.6	10.8	42.5	78.3
9. Southern Central Appalachian region.....	31.2	32.3			37.5	13.1		
10. The Ohio River Belt.....	28.5	32.6	23.3	28.7	31.5	5.7	21.8	29.7
11. Southern Interior Plateau.....	22.5	22.1			27.9	13.1		
12. South Mississippi River Belt.....	10.0	10.2			7.8	11.8		
13. North Mississippi River Belt.....	51.0	55.5	22.4	28.1			45.9	59.2
14. Southwest Central region.....	11.9	13.0			12.7	11.1		
15. Central region, plains and prairies.....	41.3	49.6	22.9	18.5	46.3	29.6		
16. The Prairie region.....	94.9	99.5					79.9	137.8
17. Missouri River Belt.....	30.0	36.7	43.0	29.4			34.3	92.4
18. Region of the Western Plains.....	70.7	99.5	73.3	171.2			38.9	211.2
19. Heavily-timbered region of the Northwest.....	120.1	110.9					74.2	123.5
20. Cordilleran region.....	33.2	137.3					33.0	24.7
21. Pacific Coast region.....	50.3	71.3	13.2	13.2			19.1	37.4

## MORTALITY AND VITAL STATISTICS.

FIG. 34.—DEATHS FROM DIPHTHERIA IN 21 GRAND GROUPS, WITH DISTINCTION OF SEX, PER 1000 DEATHS FROM KNOWN CAUSES.

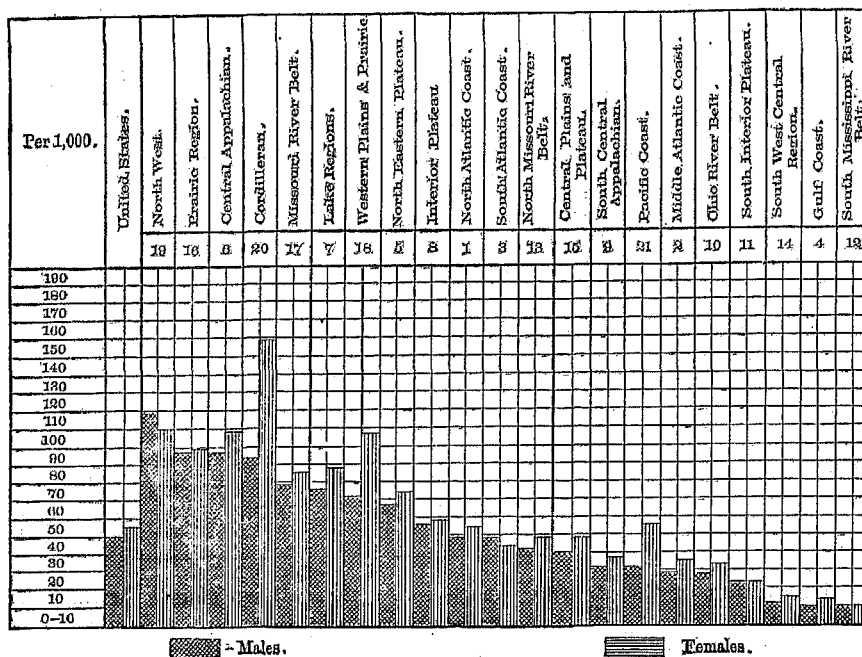
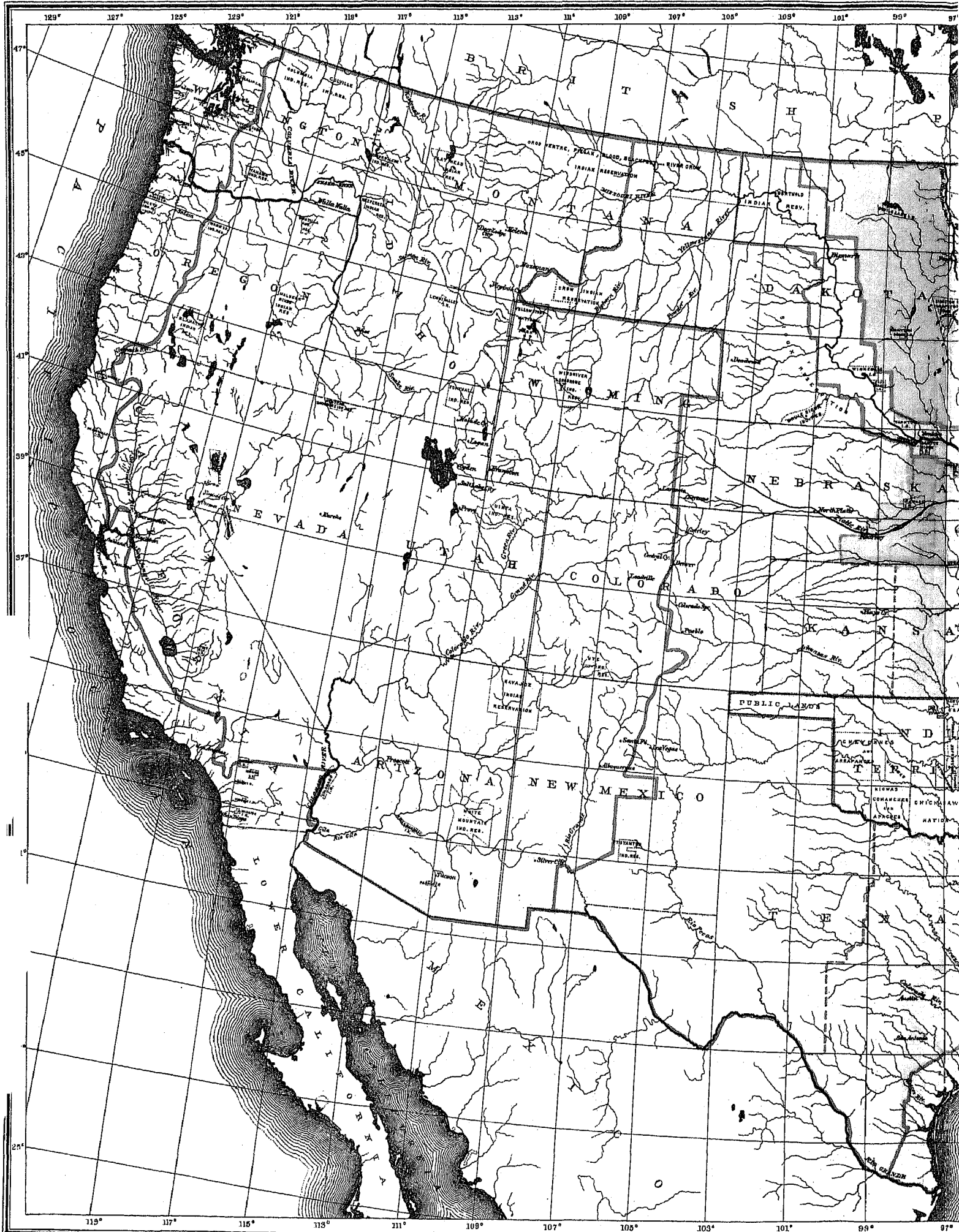


TABLE 46.—SHOWING FOR RURAL AND CITIES, WITH DISTINCTION OF SEX, AND FOR WHITE AND COLORED, IRISH AND GERMAN PARENTAGE, THE PROPORTION OF DEATHS FROM CROUP IN 1000 DEATHS FROM KNOWN CAUSES.

Grand Groups.	RURAL.		CITIES.		White.	Colored.	Irish parentage.	German parentage.
	Male.	Female.	Male.	Female.				
Total.....	28.1	25.1	19.6	18.4	26.1	21.8	15.1	23.2
1. North Atlantic Coast region.....	18.2	14.6	19.9	17.8			15.3	20.2
2. Middle Atlantic Coast region.....	20.4	17.9	20.1	19.1	20.5	12.2	14.0	21.5
3. South Atlantic Coast region.....	13.7	9.8	4.7	2.4	14.0	8.6		
4. Gulf Coast region.....	16.8	16.9	7.4	9.2	16.2	10.4		
5. Northeastern Hills and Plateaus.....	17.7	15.0	14.9	9.7			16.0	25.7
6. Central Appalachian region.....	25.2	22.4	47.0	40.3			19.5	22.3
7. Region of the Great Northern Lakes.....	23.6	20.1	34.9	30.9			15.1	30.6
8. The Interior Plateau.....	20.5	19.0	18.8	15.5	19.2	17.6	19.2	14.6
9. Southern Central Appalachian region.....	59.8	48.4			59.5	35.6		
10. The Ohio River Belt.....	22.1	21.2	10.4	10.2	19.4	11.7	3.6	14.7
11. Southern Interior Plateau.....	35.4	26.0			35.7	26.9		
12. South Mississippi River Belt.....	19.0	20.2			18.8	20.0		
13. North Mississippi River Belt.....	30.2	31.4	7.2	12.5			18.7	25.1
14. Southwest Central region.....	35.8	31.8			34.1	32.9		
15. Central region, plains and prairies.....	29.8	25.7	10.8	13.5	26.9	27.4		
16. The Prairie region.....	35.4	32.0					14.6	24.8
17. Missouri River Belt.....	31.6	32.3	36.7	33.0			10.2	20.9
18. Region of the Western Plains.....	20.3	24.8	17.3	27.6			38.9	28.1
19. Heavily-timbered region of the Northwest.....	24.8	14.9					13.3	40.1
20. Cordilleran region.....	14.0	21.1					6.3	10.6
21. Pacific Coast region.....	10.6	10.5	6.9	10.7			16.7	10.9







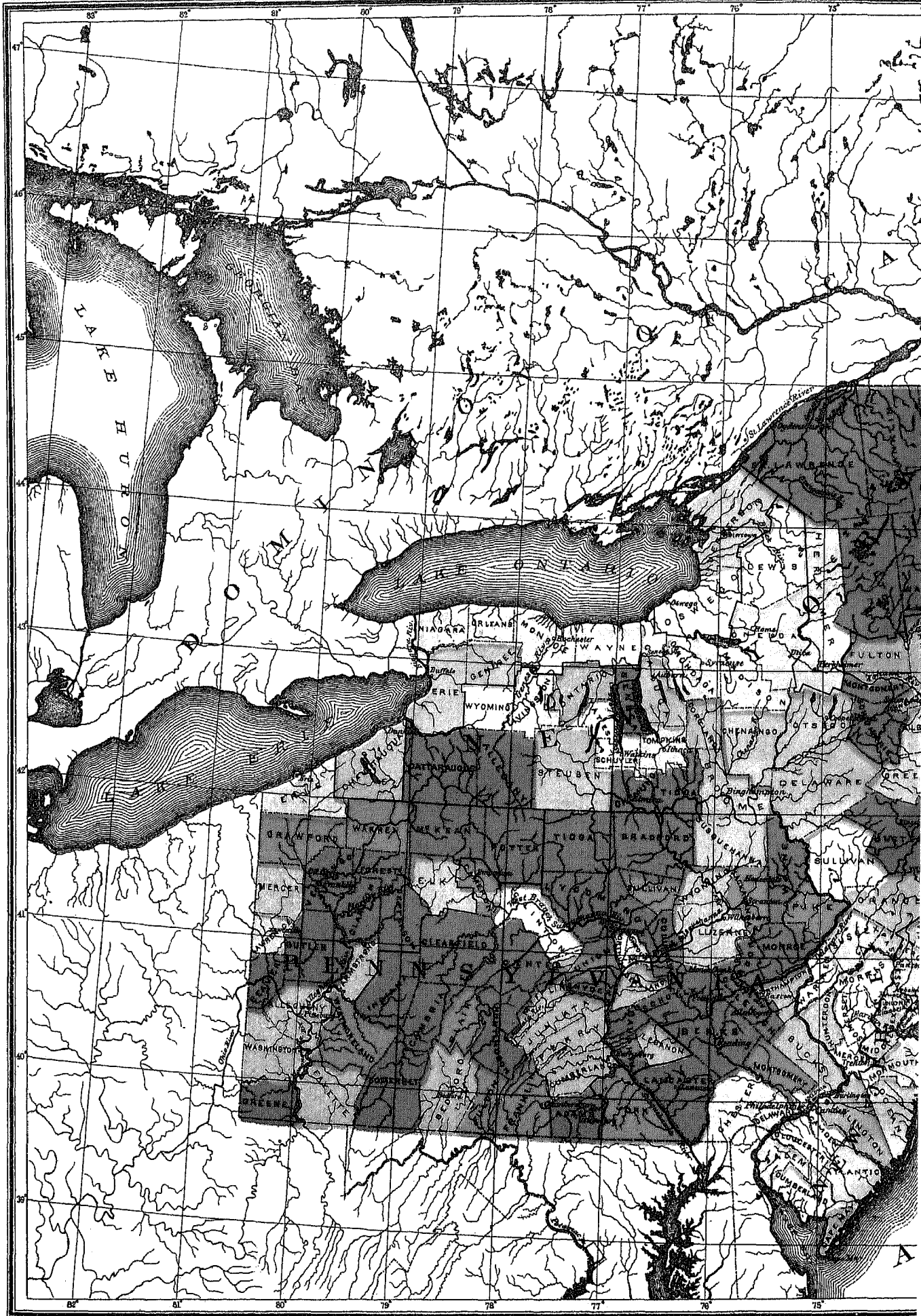
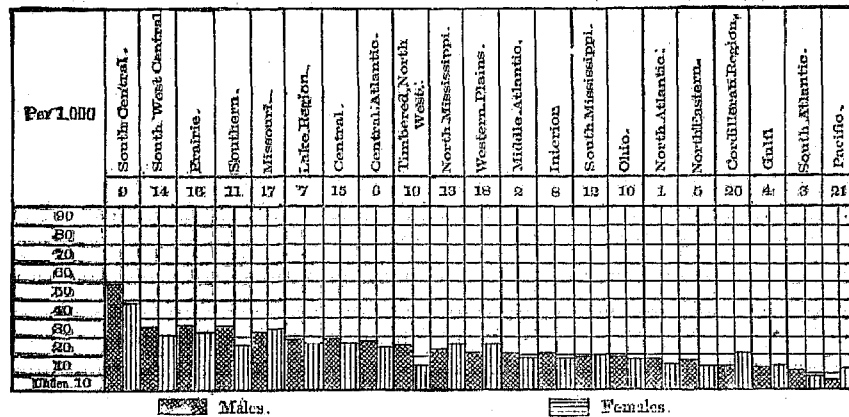






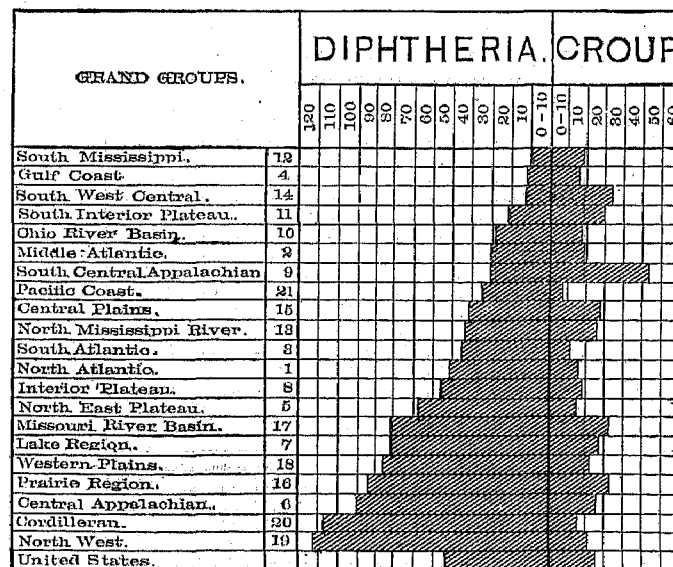
FIG. 35.—DEATHS FROM CROUP IN 21 GRAND GROUPS, WITH DISTINCTION OF SEX, PER 1000 DEATHS FROM KNOWN CAUSES.



It will be seen that diphtheria prevailed chiefly in the North, and especially in the northern part of Maine, the northeastern part of New York, the central portions of Pennsylvania, the interior of Michigan and Wisconsin, the north Missouri valley, and in the northwestern territories, while the mortality from it was relatively low in the Ohio and Mississippi valleys and in the South. The distribution of croup affords somewhat of a contrast to this, the greatest proportional number of deaths being reported in the mountain regions of Virginia, Kentucky, North Carolina, Tennessee, and Georgia, and in the eastern part of Nebraska and Dakota, while the mortality is comparatively low in New England, the south Atlantic coast, the Gulf coast, and the Mississippi valley. It corresponds with diphtheria in showing a greater rate of prevalence in northeastern New York and central Pennsylvania than in the surrounding country. How far these apparent differences between the distribution of croup and that of diphtheria are due to the fact that they are really different diseases, depending upon different causes, and having different relations to topographic and climatic peculiarities, and how far they are due to the fact that the same disease receives different names in different localities and from physicians differently educated, are questions which can not be answered from the data of the census.

The following diagram shows the relative proportions of deaths reported as due to diphtheria and croup for each grand group, those for diphtheria being arranged in the order of magnitude. It will be seen that there are great irregularities, and that there is, upon the whole, no general correspondence in the relative prevalence of the two by regions; that is, that where the proportions of death reported as due to diphtheria are great, the proportions due to croup may be either great or small. The greatest variations in this respect exist in the Southwest Central, Southern Central Appalachian, Southern Interior Plateau, and the Central Plains regions. It seems fairly probable that the variations indicated on this diagram are, to a great extent, due to the difference in the nomenclature used by the physicians and the people in different regions:

FIG. 36.—DEATHS FROM DIPHTHERIA AND CROUP, IN 21 GRAND GROUPS, PER 1000 DEATHS FROM KNOWN CAUSES.

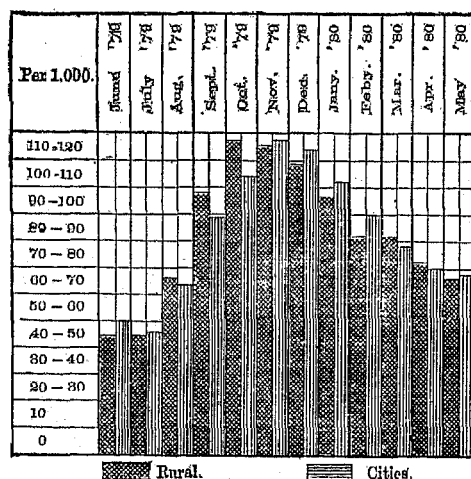


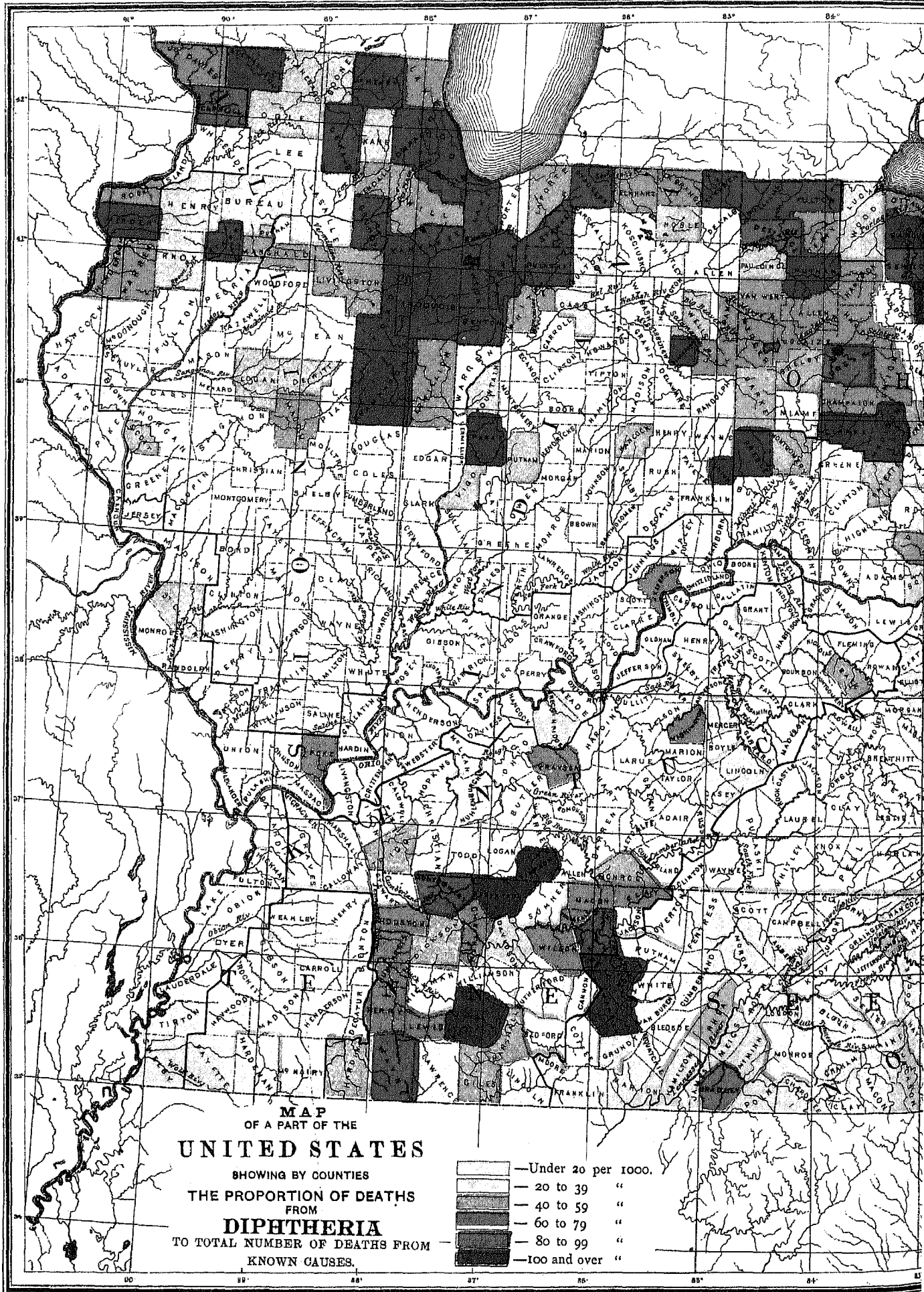
Diphtheria we know to be a disease that is spread by contagion. It is often asserted that it is a filth disease, meaning thereby that it is caused by inhaling or swallowing some of the products of the decomposition of organic matter. That it is a filth disease in so far as want of cleanliness and of proper removal of excreta and the use of water, milk, etc., contaminated by excreta, tends to promote the conveyance of the cause of the disease from one person to another there is little reason to doubt; but that it is a filth disease in the sense that decomposing excreta may, without the addition of a specific cause, produce the disease, there is no sufficient evidence. If stored filth alone will cause diphtheria, it should prevail in nearly every county in the United States, and also throughout the civilized world, for we have no reason to suppose that American filth possesses any qualities peculiar to itself. It would seem that the proportion of deaths from this cause is less in the large cities which are sewered than in the smaller ones which rely more upon cesspools and privy-vaults; it is only in the cities of New Orleans and Denver that the proportion of deaths from diphtheria exceeds that of the surrounding region, and neither of these is sewered. The importance of diphtheria in a sanitary point of view is so great, and the information which we have with regard to its relative prevalence in different localities in this country is so defective, that it has been thought worth while to give quite fully the census data with regard to it. For this purpose Maps Nos. 5, 6, 7, and 8 have been prepared, showing the distribution of the deaths reported as occurring from this disease by counties in the northern and eastern portions of the country, and with the same object in view, Table XXXIII is given, showing for each grand group, with the exclusion of fifty cities, the deaths from diphtheria with distinctions of sex, age, color, parentage, and months of death. An examination of these county maps indicates very distinctly the occurrence of a large number of small, comparatively localized epidemics, and that the disease can not be due to any peculiarity of climate, of geological formation, of topography, or of methods of filth-disposal. The following table and diagram show the distribution by months of the deaths reported as due to diphtheria in 50 cities and rural districts:

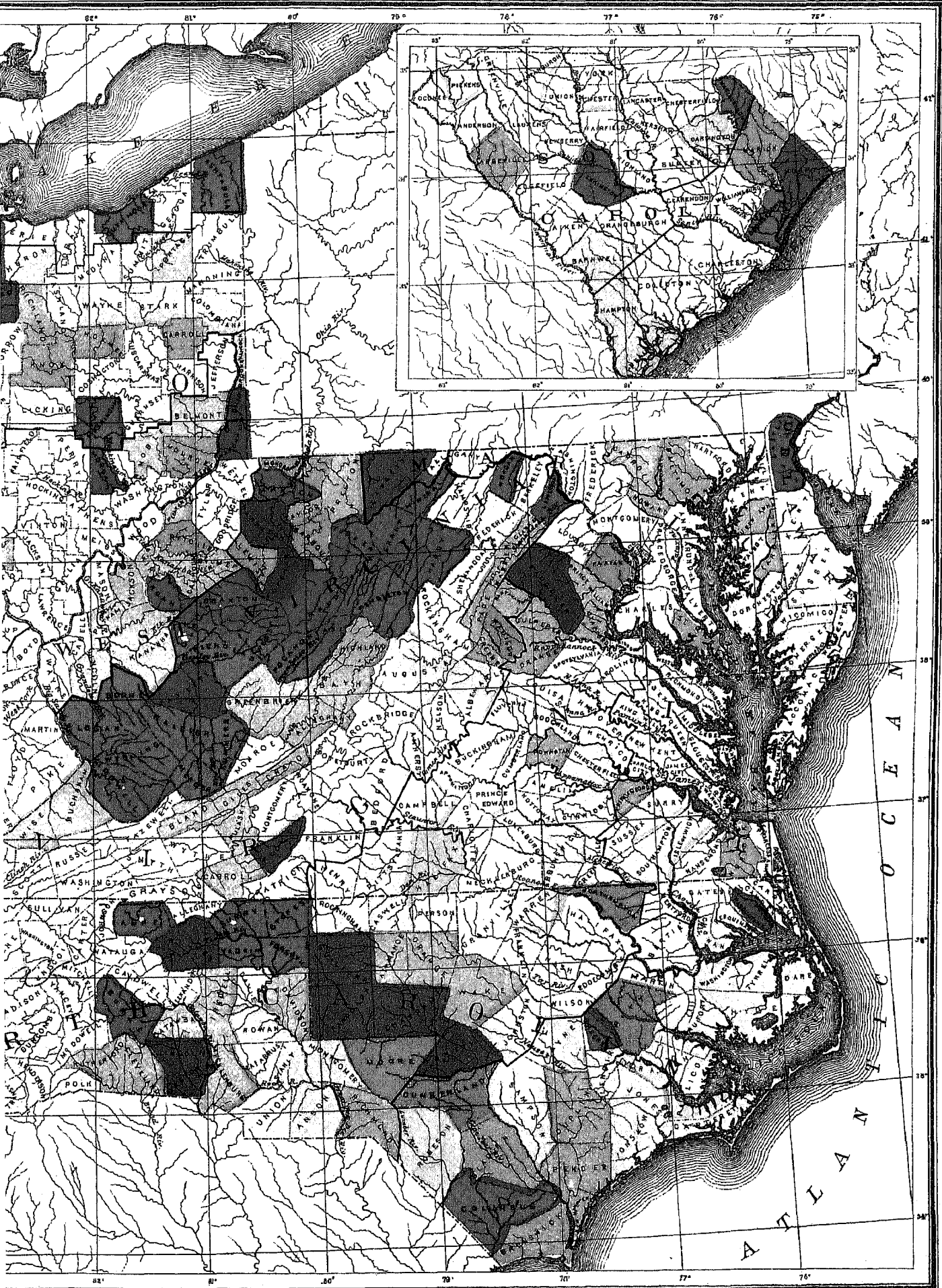
TABLE 47.—SHOWING DEATHS FROM DIPHTHERIA IN CITIES AND RURAL DISTRICTS, WITH DISTINCTION OF MONTHS.

Months.	DEATHS FROM DIPHTHERIA.			PER 1000 DEATHS FROM DIPHTHERIA.		
	Total.	Rural.	Cities.	Total.	Rural.	Cities.
Total .....	38,143	31,909	6,234	.....	836.50	163.43
June, 1879 .....	1,743	1,430	313	45.98	45.11	50.25
July, 1879 .....	1,688	1,402	286	44.61	44.23	45.92
August, 1879 .....	2,533	2,135	398	66.70	67.36	63.90
September, 1879 .....	3,692	3,137	555	97.35	98.97	89.11
October, 1879 .....	4,408	3,757	651	116.23	118.22	104.52
November, 1879 .....	4,440	3,700	740	117.07	116.73	118.81
December, 1879 .....	4,191	3,475	716	110.51	109.68	114.96
January, 1880 .....	3,712	3,074	638	97.88	96.98	102.44
February, 1880 .....	3,159	2,595	564	83.80	81.87	90.55
March, 1880 .....	3,080	2,593	496	81.45	81.81	79.64
April, 1880 .....	2,703	2,261	442	71.27	71.33	70.96
May, 1880 .....	2,565	2,136	429	67.63	67.39	68.88
Month unknown .....	220	214	6	.....	.....	.....

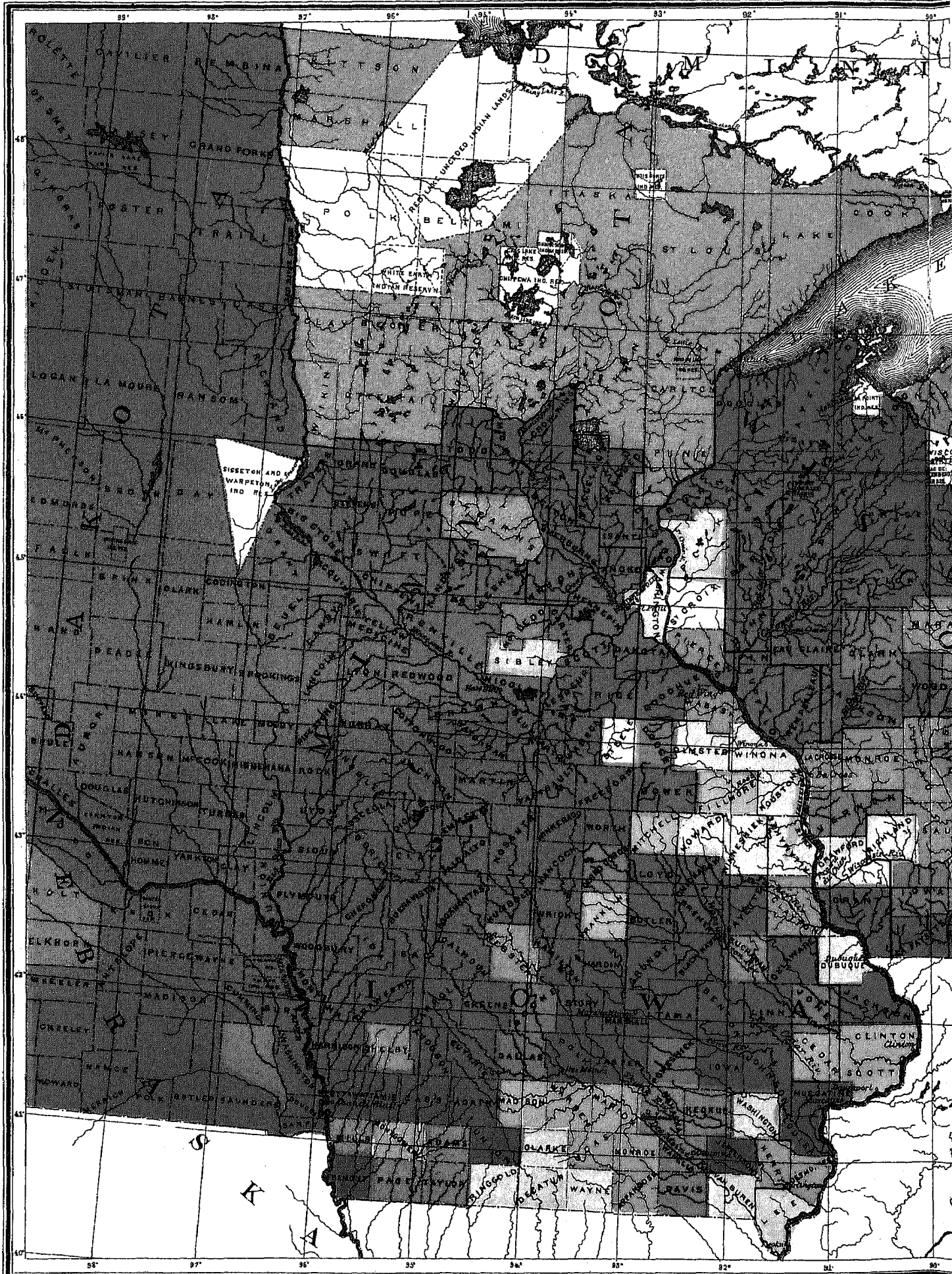
FIG. 37.—DEATHS FROM DIPHTHERIA, WITH DISTINCTION OF MONTH, IN CITIES AND RURAL DISTRICTS.

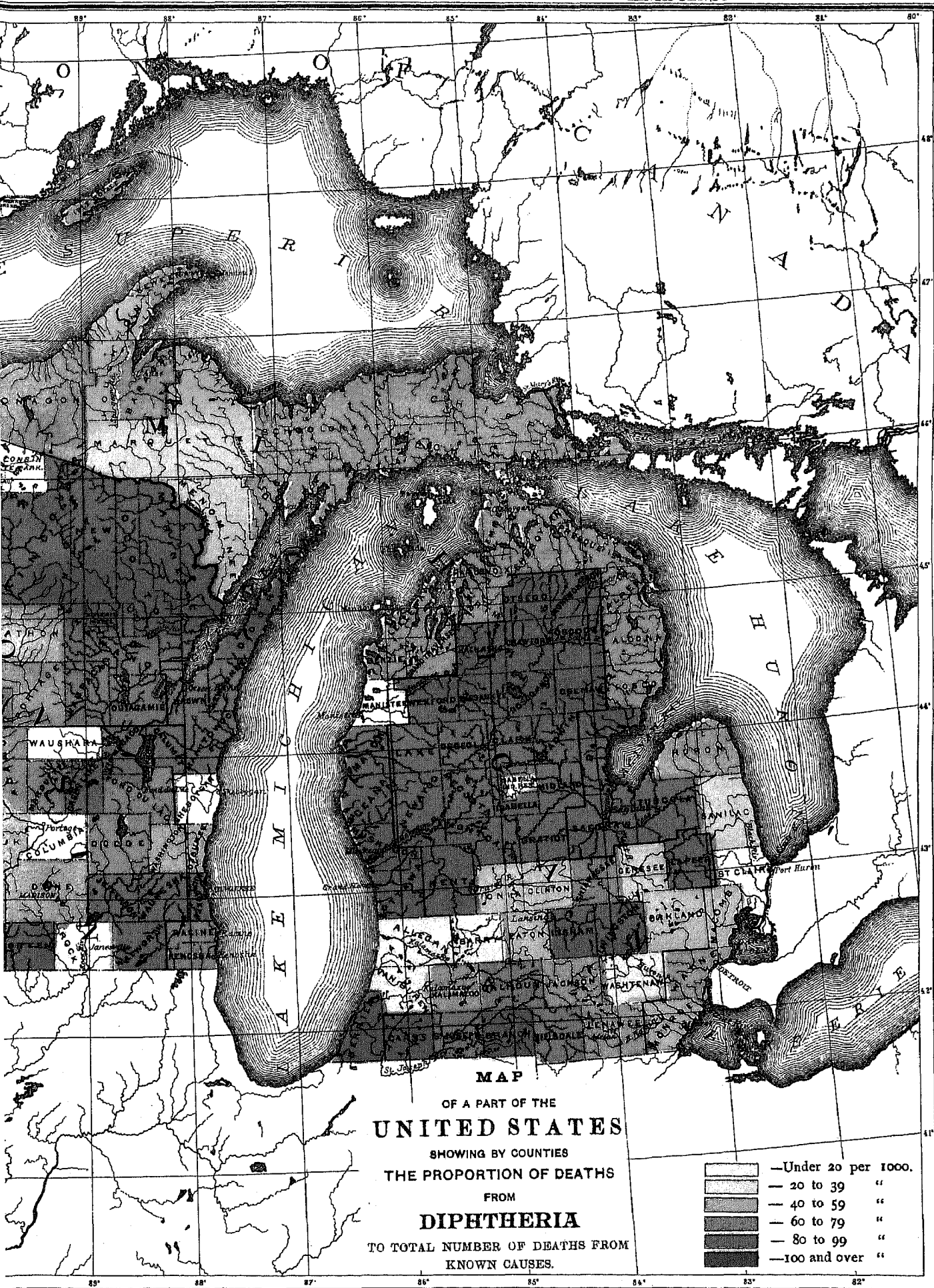








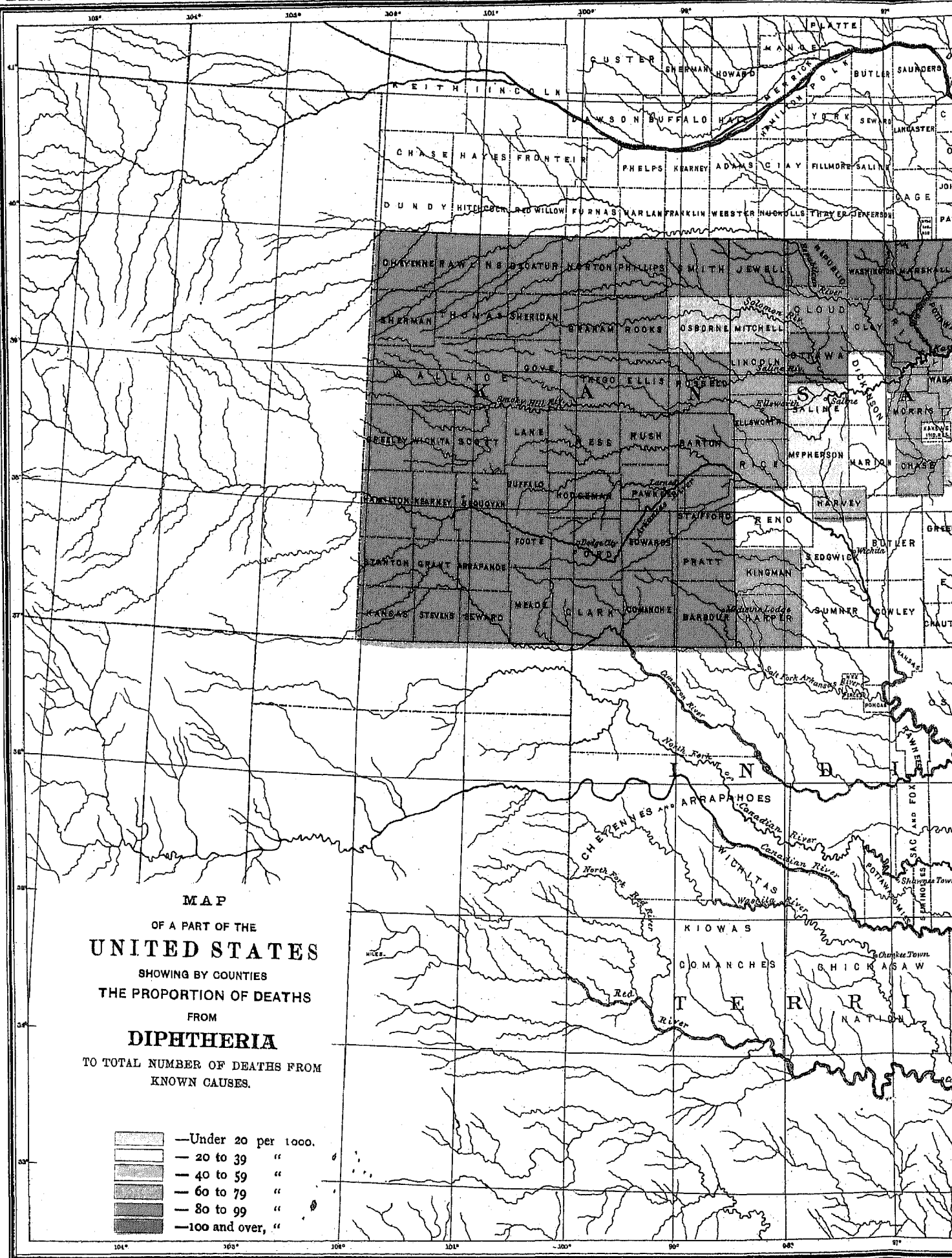


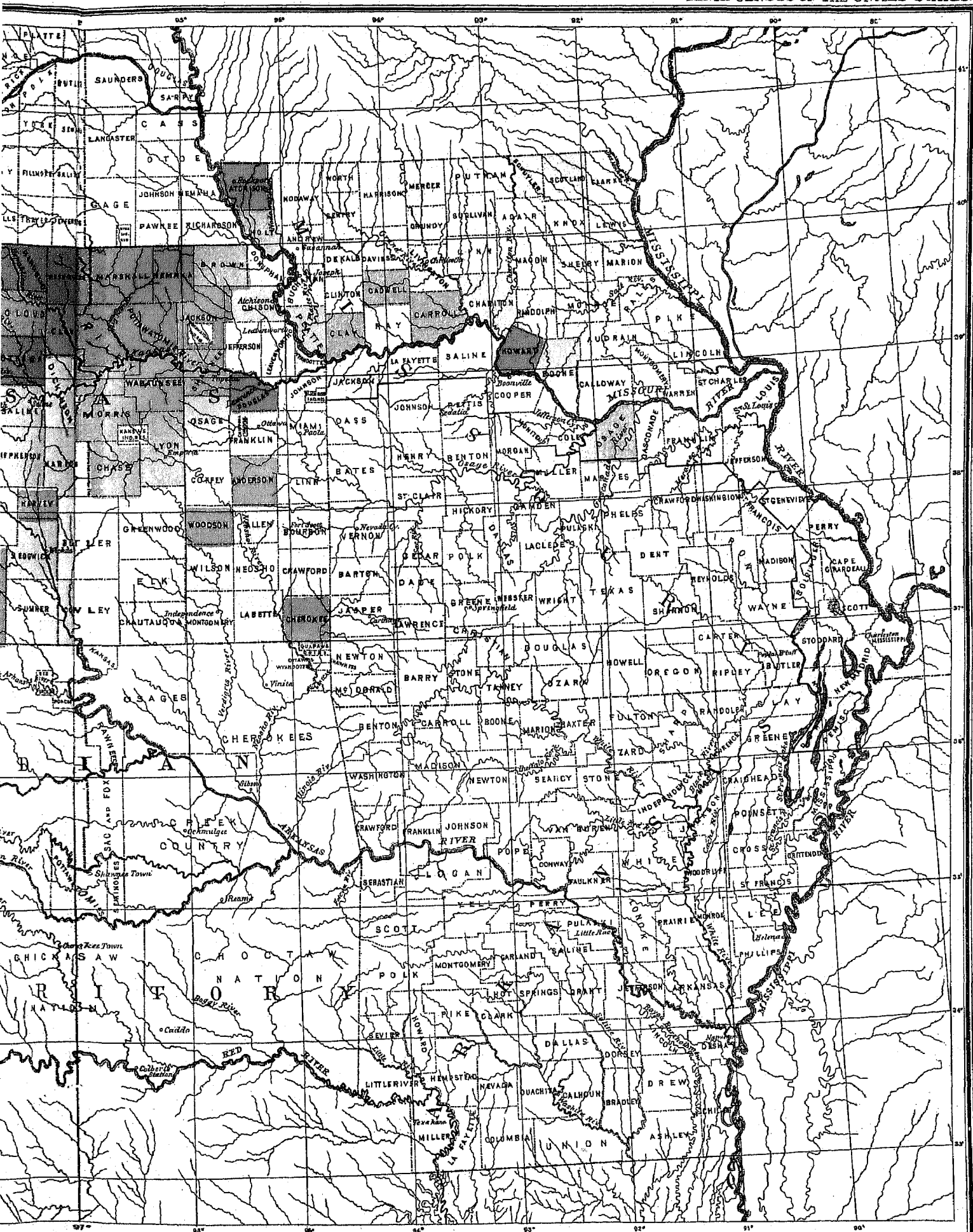


MAP  
OF A PART OF THE  
**UNITED STATES**  
SHOWING BY COUNTIES  
THE PROPORTION OF DEATHS  
FROM  
**DIPHTHERIA**  
TO TOTAL NUMBER OF DEATHS FROM  
KNOWN CAUSES.

	—Under 20 per 1000.
	— 20 to 39    "
	— 40 to 59    "
	— 60 to 79    "
	— 80 to 99    "
	—100 and over   "









It will be seen that in the 31 registration cities a very large majority of the deaths from croup occur during the months of October, November, December, January, February, March, and April. The distribution of the deaths from diphtheria throughout the year in the cities is more uniform. Nevertheless the months showing the greatest proportional number of deaths from this cause are the same as for croup.

FIG. 38.—DEATHS FROM DIPHTHERIA, BY MONTHS, IN 31 REGISTRATION CITIES.

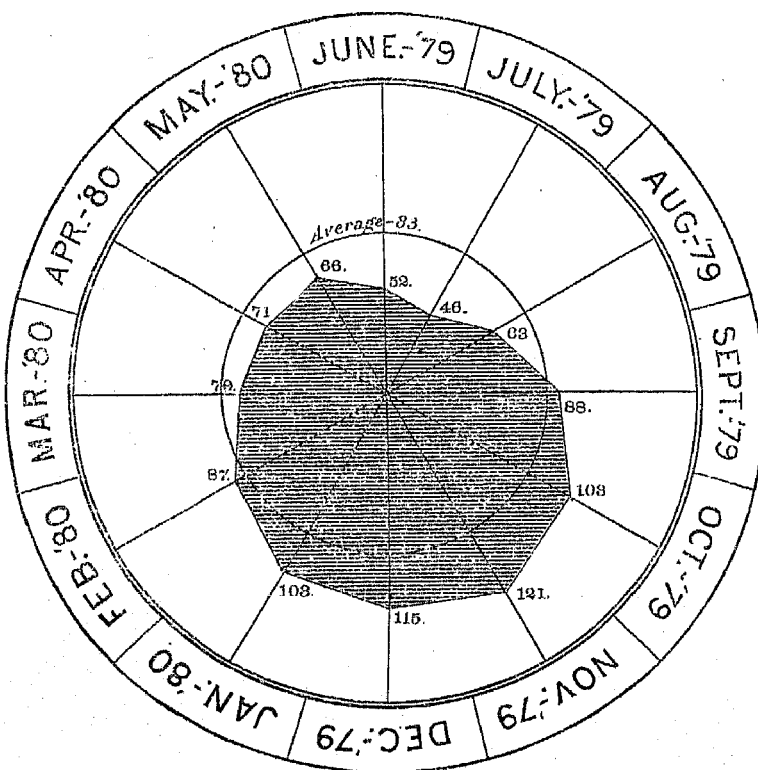
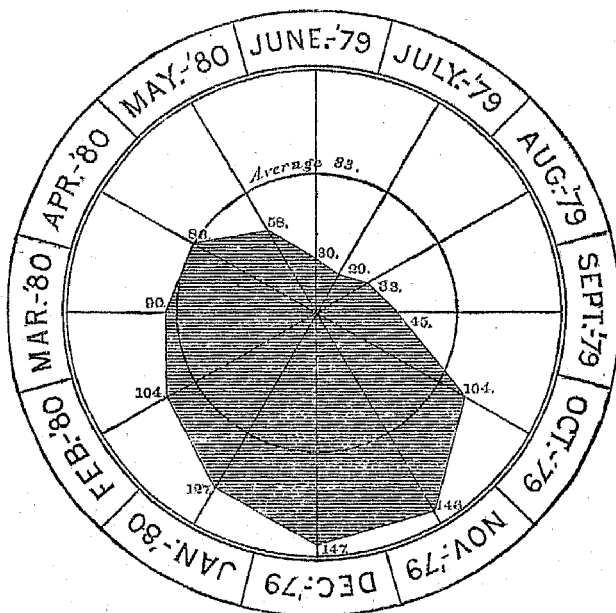


FIG. 39.—DEATHS FROM CROUP, BY MONTHS, IN 31 REGISTRATION CITIES.



## DIARRHOEAL DISEASES.

Under the term "diarrhoeal diseases" are included all deaths reported as due to diarrhoea, dysentery, cholera morbus, cholera infantum, and enteritis. The total number of deaths reported as due to these causes in the United States during the census year was 63,991, of which 34,136 were of males and 29,855 of females. They caused 8,454 deaths out of each 100,000 of all deaths reported. For the census year of 1870, the corresponding figures were 10,496, and for that of 1860, 7,720.

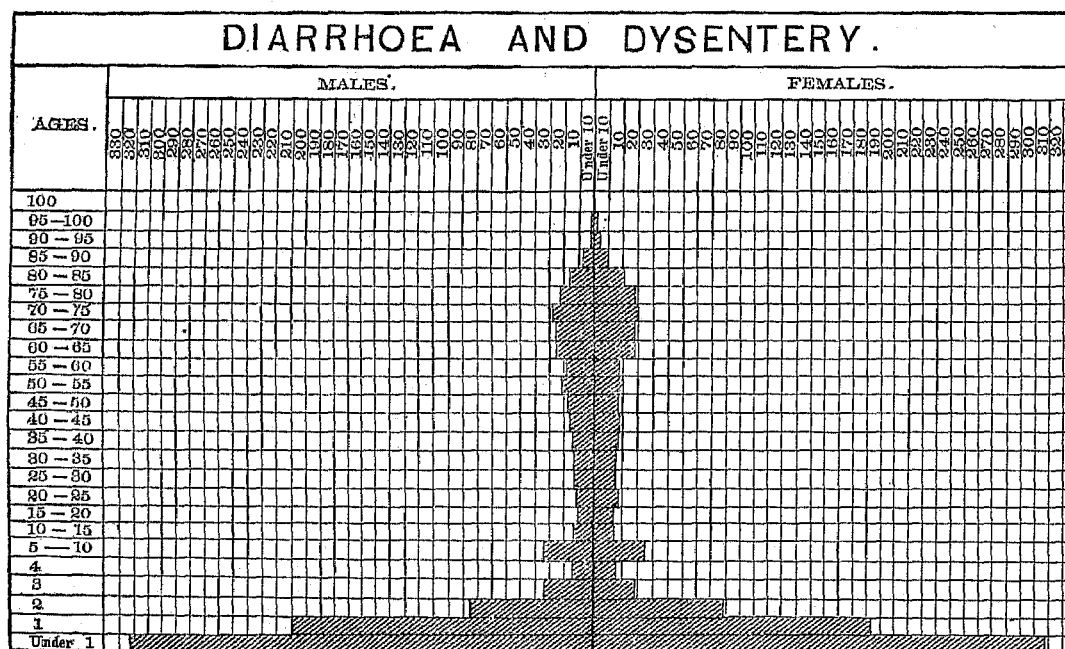
The mean age at death of those reported as dying of diarrhoeal diseases during the census year was 12 years.

The following table and diagram show the relations to age of the deaths due to diarrhoea and dysentery:

TABLE 48.—SHOWING THE NUMBER OF DEATHS FROM DIARRHOEA AND DYSENTERY AT EACH GROUP OF AGES IN EACH 1000 DEATHS REPORTED AS CAUSED BY THESE DISEASES.

Ages.	Males.	Females.	Ages.	Males.	Females.	Ages.	Males.	Females.
Under 1 year.....	323.43	318.32	15-20 years.....	11.47	12.99	60-65 years.....	25.89	27.58
1 year.....	210.48	201.56	20-25 years.....	13.79	15.92	65-70 years.....	25.50	27.23
2 years.....	85.35	87.47	25-30 years.....	14.03	14.95	70-75 years.....	27.59	30.43
3 years.....	33.41	29.03	30-35 years.....	14.05	14.95	75-80 years.....	22.01	20.81
4 years.....	17.44	15.84	35-40 years.....	15.58	16.10	80-85 years.....	16.43	21.80
Total under 5 years..	669.74	652.84	40-45 years.....	17.59	17.44	85-90 years.....	8.45	10.94
5-10 years.....	36.43	33.01	45-50 years.....	18.99	19.91	90-95 years.....	2.94	4.36
10-15 years.....	15.50	13.08	50-55 years.....	21.24	19.84	95 and over.....	2.32	2.40
			55-60 years.....	19.38	17.44	Unknown.....		

FIG. 40.—DEATHS FROM DIARRHOEA AND DYSENTERY AT CERTAIN GROUPS OF AGES IN 1000 DEATHS CAUSED BY THESE DISEASES.



Diarrhoeal affections caused a greater proportion of deaths in the large cities (96.1) than in the rural districts (86.7). In those regions where the distinction of color and parentage was made they caused a greater proportion of deaths among the whites (99.2) than among the colored (71.2), and among the German (90.2) than among the Irish (68.0).

The geographical distribution of the diseases of this class is shown by Map No. 10. It will be seen that these affections are much more generally prevalent over the whole country than is the case with regard to the special diseases previously discussed. The regions showing the greatest proportions of deaths are the upper Mississippi valley, Texas, the southern part of Missouri and the eastern part of Kansas, the northern part of Georgia, the western part of South Carolina, and Maryland, while they are less prevalent in New England and the western territories. In studying this map it should be borne in mind that the majority of deaths from these causes occur in children under 5 years of age, and that these diseases are much more prevalent in cities than in the rural districts. The following table shows by grand groups the distribution of the deaths from this class of diseases:

DEPARTMENT OF THE INTERIOR

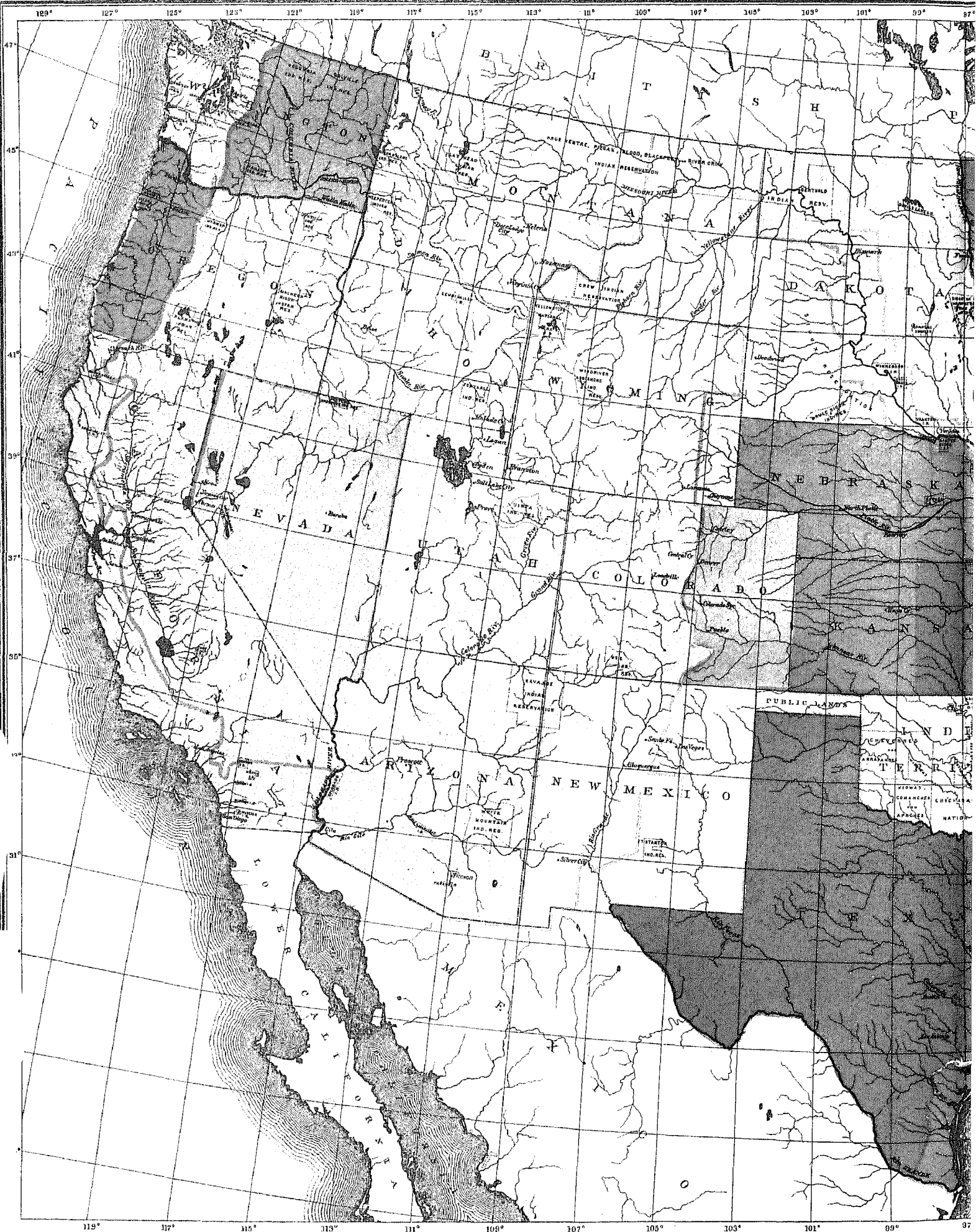


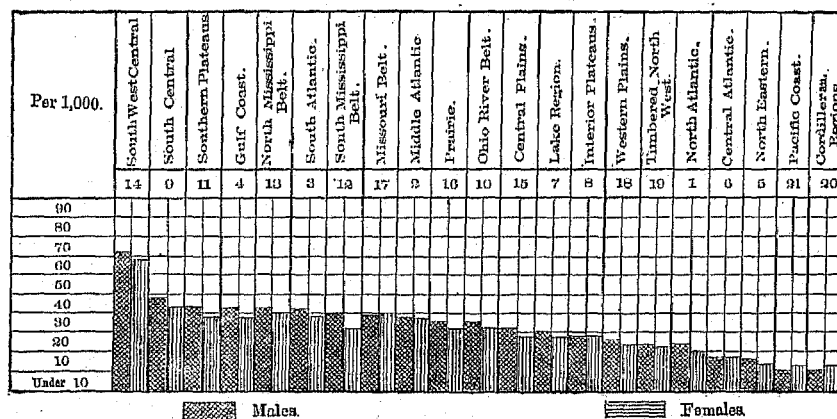




TABLE 49.—SHOWING FOR RURAL AND CITIES, WITH DISTINCTION OF SEX, AND FOR WHITE AND COLORED, IRISH AND GERMAN PARENTAGE, THE PROPORTION OF DEATHS FROM DIARRHŒA, DYSENTERY, CHOLERA INFANTUM, CHOLERA MORBUS, AND ENTERITIS, IN 1000 DEATHS FROM KNOWN CAUSES.

Grand Groups.	RURAL.		CITIES.		White.	Colored.	Irish parentage.	German parentage.
	Male.	Female.	Male.	Female.				
Total .....	90.20	83.10	96.60	95.80	99.2	71.2	68.0	90.2
1. North Atlantic Coast region .....	65.85	57.97	95.65	87.45			75.1	100.1
2. Middle Atlantic Coast region .....	103.10	101.70	103.39	100.89	103.3	97.4	77.3	109.8
3. South Atlantic Coast region .....	85.53	69.69	83.42	101.78	95.3	70.7		
4. Gulf Coast region .....	82.27	79.26	104.80	94.00	96.3	76.6		
5. Northeastern Hills and Plateaus .....	61.93	53.01	84.22	87.30			63.8	103.0
6. Central Appalachian region .....	71.42	66.96	103.96	107.66			51.0	65.5
7. Region of the Great Northern Lakes .....	76.79	68.02	103.17	101.04			46.9	78.6
8. The Interior Plateau .....	78.14	73.99	85.08	84.16	79.7	73.0	56.7	59.5
9. Southern Central Appalachian region .....	97.05	85.45			102.8	53.8		
10. The Ohio River Belt .....	101.11	91.84	98.74	101.84	100.1	70.2	66.5	88.8
11. Southern Interior Plateau .....	92.20	79.03			110.0	67.1		
12. South Mississippi River Belt .....	81.86	67.50			91.8	62.5		
13. North Mississippi River Belt .....	105.97	103.40	113.90	110.58			71.4	101.9
14. Southwest Central region .....	120.56	127.05			139.0	81.6		
15. Central region, plains and prairies .....	88.74	78.91	85.87	88.38	88.4	53.7		
16. The Prairie region .....	108.51	95.13					73.0	82.6
17. Missouri River Belt .....	94.90	97.42	124.29	102.04			61.3	109.1
18. Region of the Western Plains .....	88.41	66.55	72.01	116.02			51.9	84.5
19. Heavily-timbered region of the Northwest .....	82.20	63.25					55.2	84.4
20. Cordilleran region .....	42.48	54.48					34.9	28.2
21. Pacific Coast region .....	65.94	74.70	39.20	54.60			44.0	43.6

FIG. 41.—DEATHS FROM DIARRHŒA AND DYSENTERY IN 21 GRAND GROUPS, WITH DISTINCTION OF SEX, PER 1000 DEATHS FROM KNOWN CAUSES.



The following diagrams show the relations of deaths reported as due to diarrhœa and dysentery, cholera morbus, cholera infantum, dentition, convulsions, and meningitis in 31 registration cities in relation to the month of death. It will be seen that in all of them the greatest proportion of deaths occur during the summer months, the maximum in each case being reached during the month of July. The greater proportion of the deaths from all these causes occurs in children and infants, and it is probable that in many cases they are only different names for what is essentially the same cause of death:

FIG. 42.—DEATHS FROM DIARRHŒA AND DYSENTERY, BY MONTHS, IN 31 REGISTRATION CITIES.

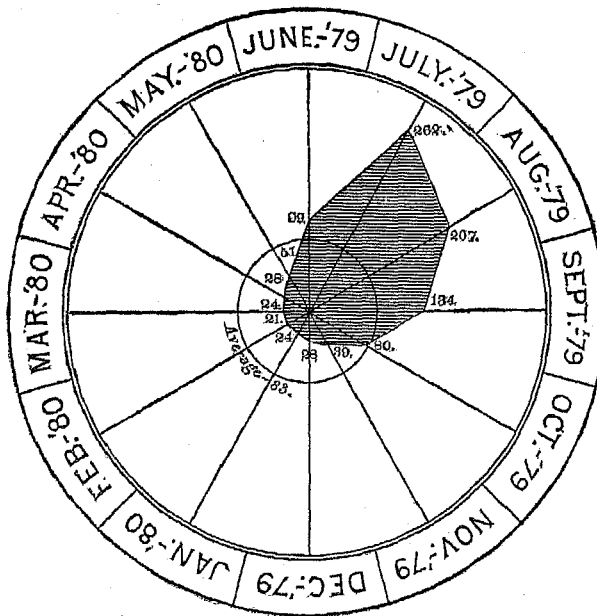


FIG. 43.—DEATHS FROM CHOLERA MORBUS, BY MONTHS, IN 31 REGISTRATION CITIES.

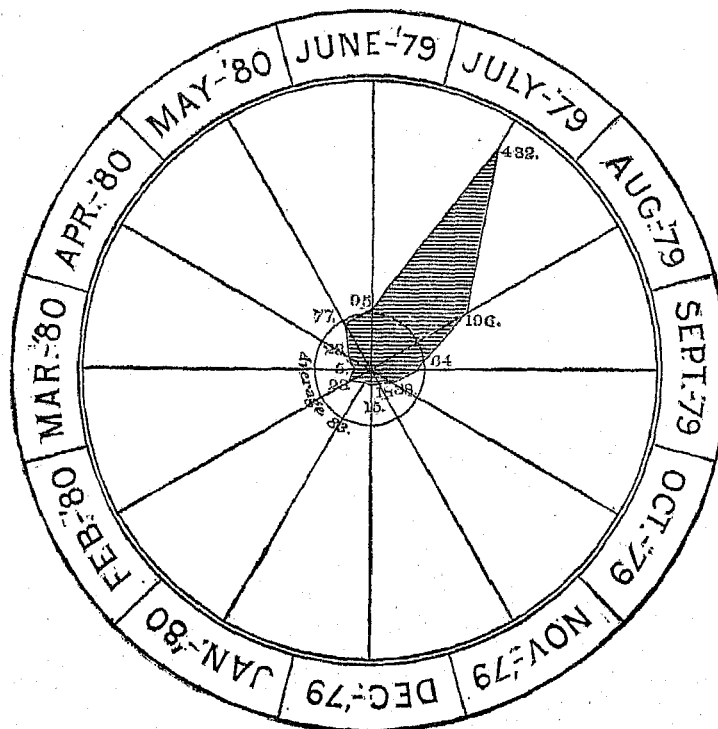


FIG. 44.—DEATHS FROM CHOLERA INFANTUM, BY MONTHS, IN 31 REGISTRATION CITIES.

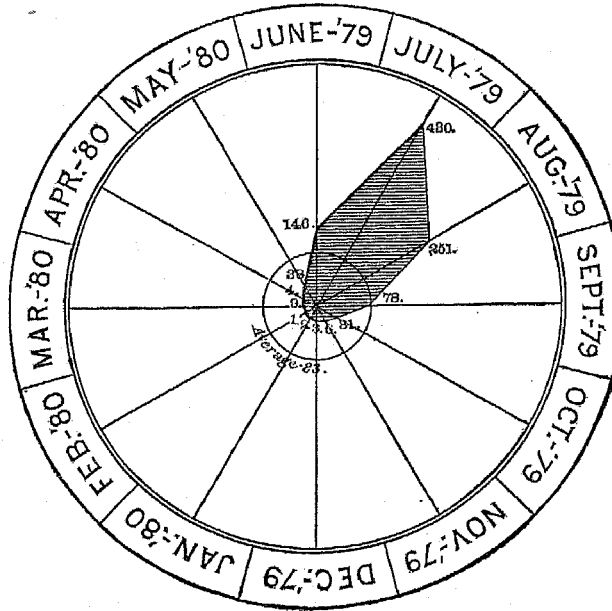
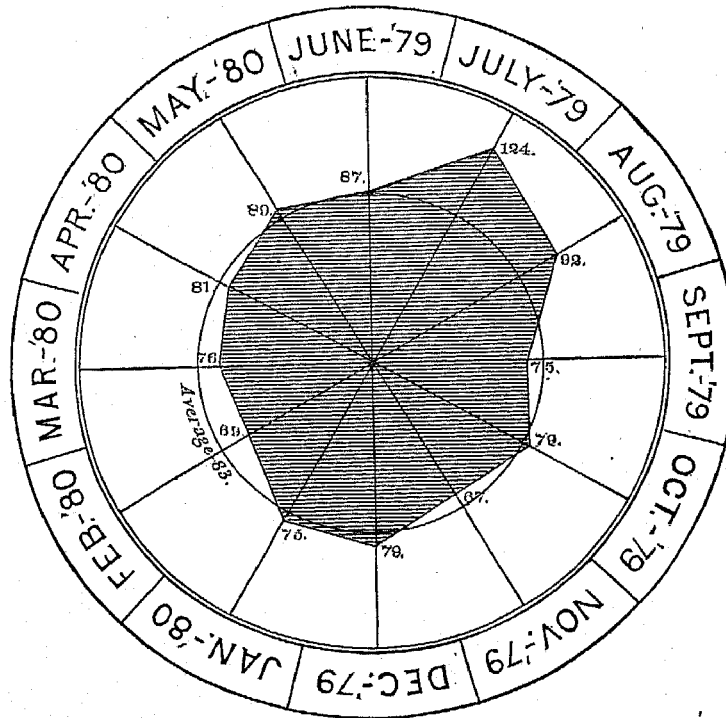


FIG. 45.—DEATHS FROM CONVULSIONS, BY MONTHS, IN 31 REGISTRATION CITIES.



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FIG. 46.—DEATHS FROM DENTITION, BY MONTHS, IN 31 REGISTRATION CITIES.

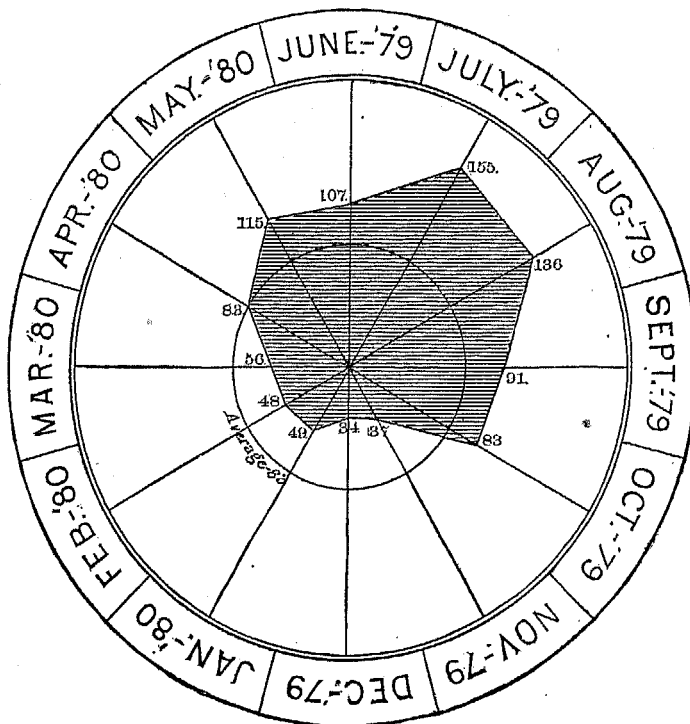
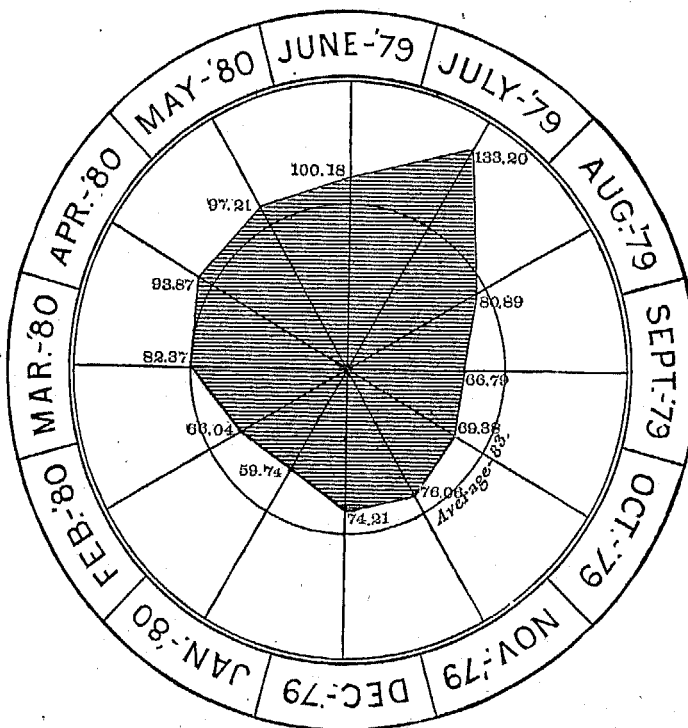
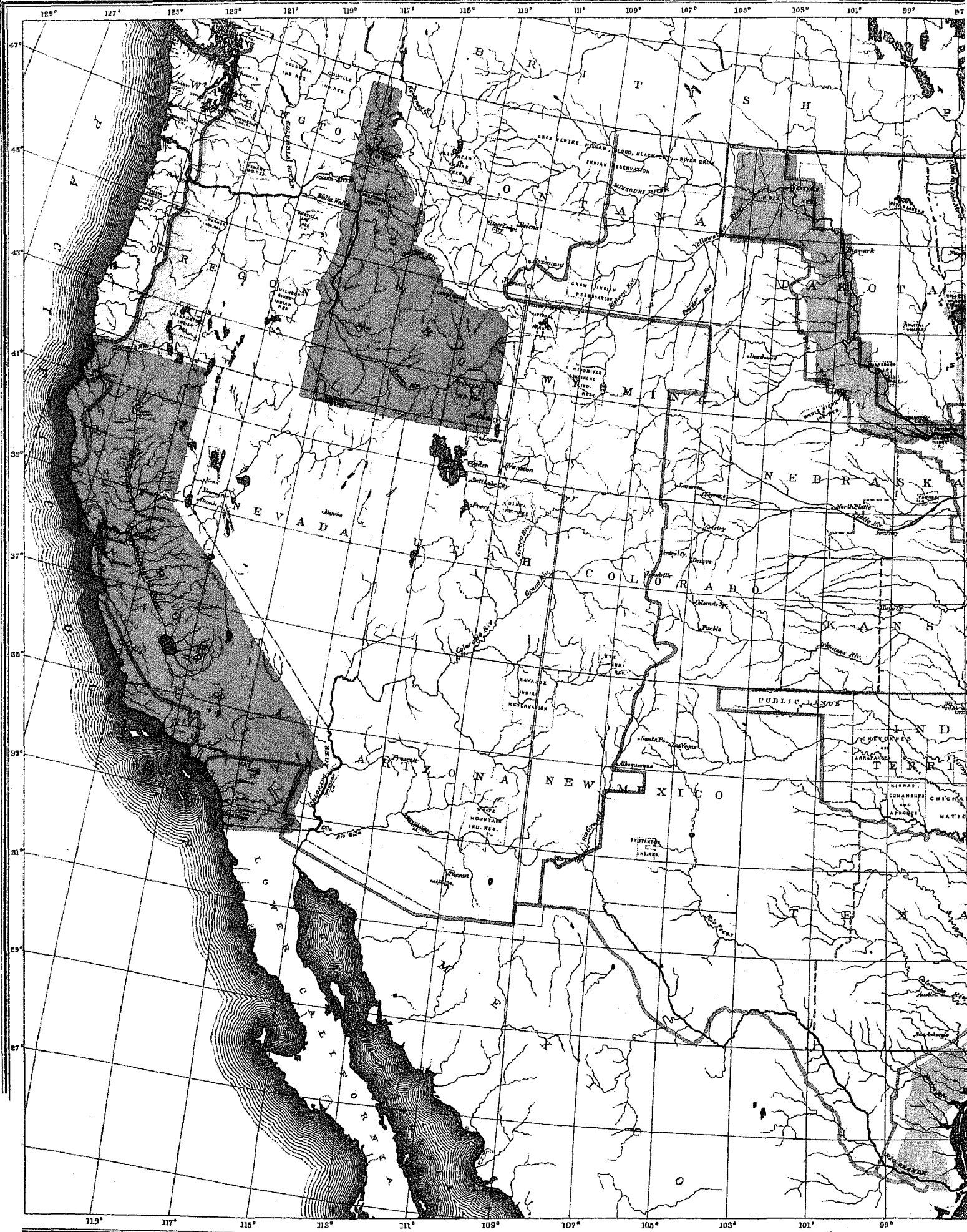


FIG. 47.—DEATHS FROM MENINGITIS, BY MONTHS, IN 31 REGISTRATION CITIES.









## OLD AGE.

The total number of deaths reported as due to old age in the Census of 1880 was 14,168, of which 6,102 were males and 8,066 were females. It caused 1,872 out of each 100,000 deaths from all causes reported, as against 1,621 in 1870, 2,762 in 1860, and 2,795 in 1850.

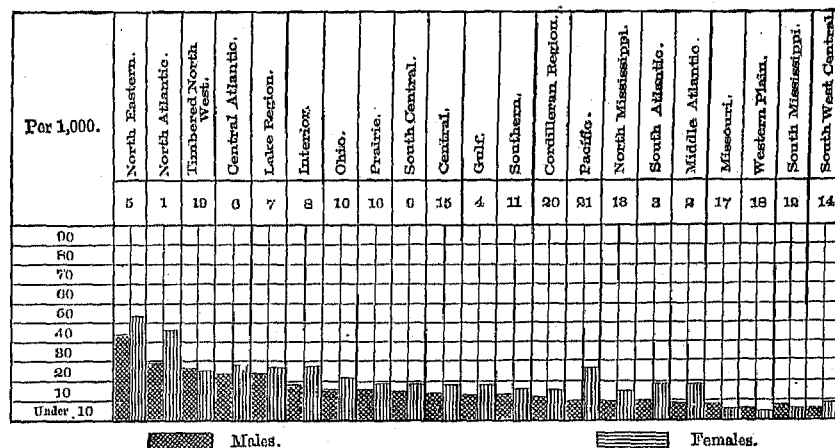
The following table and diagram, in connection with Map No. 16, show the geographical distribution of deaths from this cause. From this it will be seen that the greatest proportional number of deaths from this cause occurred in the northern and eastern states.

The geographical distribution of deaths from old age is, of course, mainly dependent upon the proportion of persons of advanced years living in each region, which will be given hereafter.

TABLE 50.—SHOWING FOR RURAL AND CITIES, WITH DISTINCTION OF SEX, THE PROPORTION OF DEATHS FROM OLD AGE IN 1000 DEATHS FROM KNOWN CAUSES.

Grand Groups.	TOTAL.		RURAL.		CITIES.		Grand Groups.	TOTAL.		RURAL.		CITIES.	
	M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M.	F.
Total.....	16.3	23.2					11. Southern Interior Plateau.....	12.7	16.2				
1. North Atlantic Coast region.....	20.7	47.8	35.7	53.1	19.0	38.1	12. South Mississippi River Belt.....	7.0	10.1				
2. Middle Atlantic Coast region.....	9.5	18.7	18.5	31.8	5.8	13.1	13. North Mississippi River Belt.....	10.7	15.3	13.9	19.9	2.5	4.5
3. South Atlantic Coast region.....	10.2	18.7	9.8	15.3	13.1	35.7	14. Southwest Central region.....	6.3	9.5				
4. Gulf Coast region.....	13.3	18.3	14.1	17.8	11.9	20.8	15. Central region, plains and prairies.....	14.3	19.2	13.7	18.4	26.7	35.6
5. Northeastern Hills and Plateaus.....	43.6	54.4	46.1	55.5	12.7	38.9	16. The Prairie region.....	10.6	19.3				
6. Central Appalachian region.....	23.3	28.8	23.5	28.2	18.5	41.7	17. Missouri River Belt.....	9.2	7.5	9.6	7.5	2.3	7.3
7. Region of the Great Northern Lakes.....	22.0	26.9	30.9	32.0	13.2	21.7	18. Region of the Western Plains.....	7.0	5.6	7.0	6.3	6.9	
8. The Interior Plateau.....	18.9	27.0	21.4	28.5	13.5	23.7	19. Heavily-timbered region of the North-west.....	27.6	25.0				
9. Southern Central Appalachian region.....	15.4	19.8					20. Cordilleran region.....	11.4	15.3				
10. The Ohio River Belt.....	16.9	22.8	6.3	22.3	18.4	24.2	21. Pacific Coast region.....	19.9	20.9	15.2	18.7	7.2	24.1

FIG. 48.—DEATHS FROM OLD AGE IN 21 GRAND GROUPS, WITH DISTINCTION OF SEX, PER 1000 DEATHS FROM KNOWN CAUSES.



## HOOPING-COUGH.

The total number of deaths reported as due to hooping-cough during the census year is 11,064, being 14.6 per 1000 deaths from all causes. This proportion is smaller than for the Census of 1870, when it was 18.3, or for the Census of 1860, when it was 21.3. The proportion of deaths from this cause in each 1000 deaths of which the causes were specified was, for males, 13.78, and for females, 17.07. In England and Wales, for the 10 years 1870-79, the proportion of deaths from this cause was 23.8, and for the year 1880 it was 25.9.

The mean age at death of those reported as dying from hooping-cough during the census year was 2 years.

The proportion of deaths from hooping-cough occurring under 1 year of age is, for males, 530.7, for females, 498.5 per 1000; under 5 years of age, for males, 937.4, for females, 930.9. The general rule holds good that this disease is more fatal in females than in males, although the disproportion is not so great as in the Census of 1870, in which the deaths were 3,987 males and 5,021 females. It caused a greater proportion of deaths in the rural districts (16.9) than in the large cities (9.7); and in those regions where distinction of color was made, a much greater proportion among the colored (33.0) than among the whites (14.3); among the deaths in those of German parentage the proportion was 8.4, and in those of Irish parentage 6.0 in each 1000 deaths from known causes.

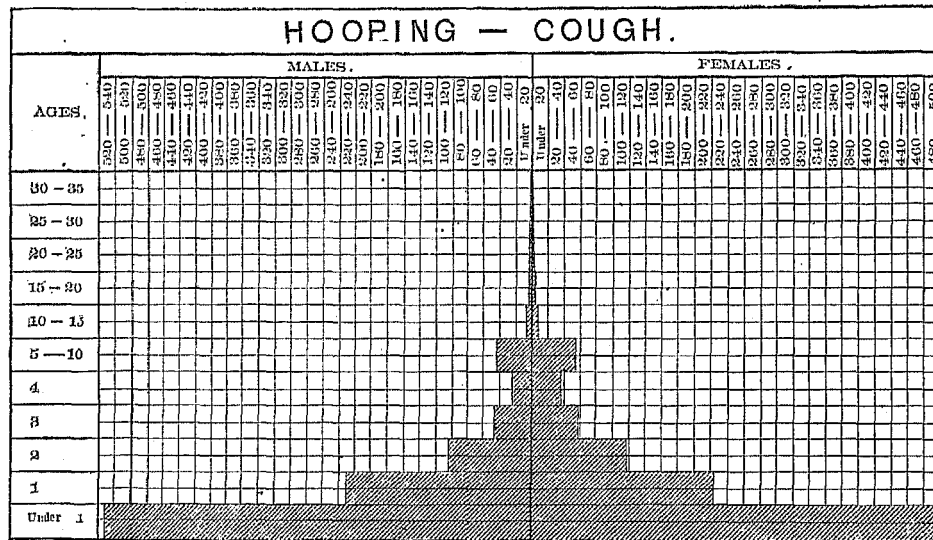
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The following table and diagram show the relations to age of the deaths due to hooping-cough:

TABLE 51.—SHOWING THE NUMBER OF DEATHS FROM HOOPING-COUGH AT EACH GROUP OF AGES IN EACH 1000 DEATHS REPORTED AS CAUSED BY THIS DISEASE.

Ages.	Males.	Females.	Ages.	Males.	Females.	Ages.	Males.	Females.
Under 1 year .....	530.57	498.56	15-20 years.....	1.76	2.70	60-65 years.....	0.20	0.84
1 year.....	230.51	224.36	20-25 years.....	1.17	1.35	65-70 years.....	0.20	0.34
2 years.....	102.36	118.43	25-30 years.....	1.17	1.18	70-75 years.....	0.20	0.17
3 years.....	47.27	57.10	30-35 years.....	0.39	0.34	75-80 years.....		0.17
4 years.....	26.76	32.44	35-40 years.....		0.17	80-85 years.....	0.20	0.17
Total under 5 years..	937.49	930.90	40-45 years.....	0.59	0.17	85-90 years.....	0.20	
5-10 years.....	47.27	53.39	45-50 years.....		0.17	90-95 years.....		
10-15 years.....	8.79	7.60	50-55 years.....	0.20	0.34	95 and over.....		
			55-60 years.....	0.20		Unknown.....	2.73	2.03

FIG. 49.—DEATHS FROM HOOPING-COUGH AT CERTAIN GROUPS OF AGES IN 1000 DEATHS CAUSED BY THIS DISEASE.



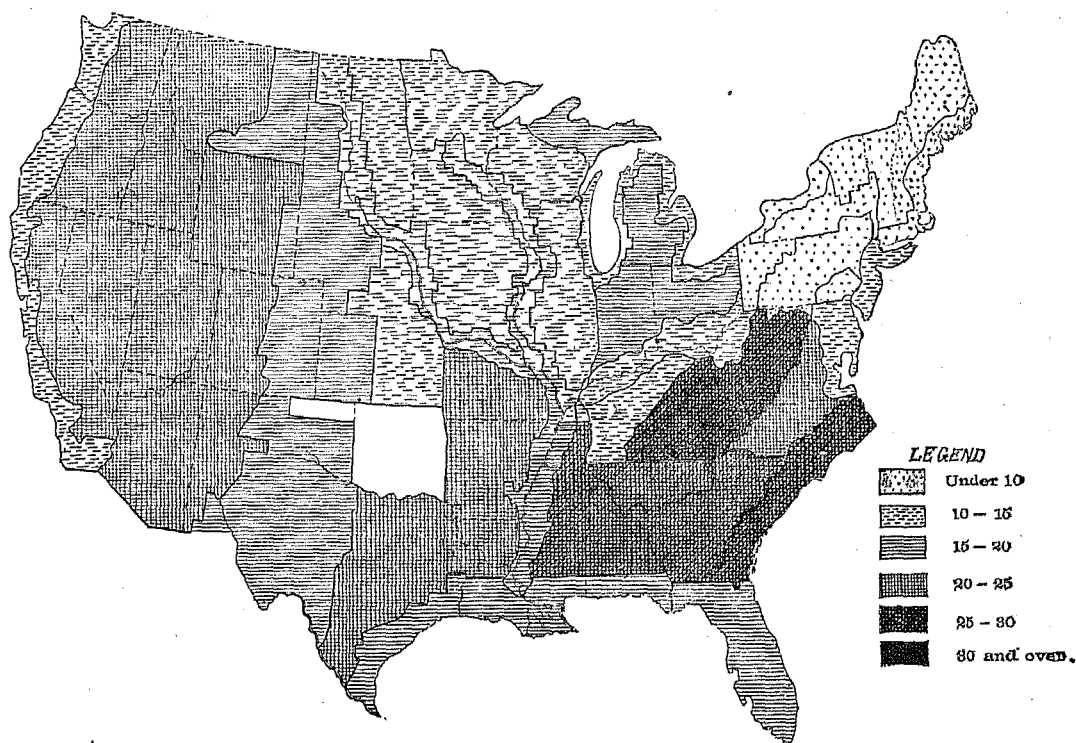
The following table and cartogram show the distribution of deaths from hooping-cough by grand groups. It will be seen that it was most prevalent in the Appalachian region and on the southern Atlantic coast, the smallest number of deaths being in New England:

TABLE 52.—SHOWING FOR RURAL AND CITIES, WITH DISTINCTION OF SEX, AND FOR WHITE AND COLORED, IRISH AND GERMAN PARENTAGE, THE PROPORTION OF DEATHS FROM HOOPING-COUGH IN EACH 1000 DEATHS FROM KNOWN CAUSES.

Grand Groups.	RURAL.		CITIES.		White.	Colored.	Irish parentage.	German parentage.
	Male.	Female.	Male.	Female.				
Total.....	15.40	18.60	8.20	11.40	14.3	33.0	6.0	8.4
1. North Atlantic Coast region.....	5.90	7.44	9.19	13.95			8.6	15.4
2. Middle Atlantic Coast region.....	12.72	16.08	8.09	11.38	9.4	23.2	6.6	5.6
3. South Atlantic Coast region.....	41.01	38.10	13.11	15.68	20.5	48.8		
4. Gulf Coast region.....	19.95	20.84	8.71	14.00	14.5	22.1		
5. Northeastern Hills and Plateaus.....	5.23	7.75	2.13	7.30			5.5	
6. Central Appalachian region.....	6.43	8.25	2.47	2.69			4.0	3.5
7. Region of the Great Northern Lakes.....	13.23	15.13	5.28	6.46			3.7	5.8
8. The Interior Plateau.....	11.85	14.31	8.48	10.49	8.5	30.8	2.9	4.7
9. Southern Central Appalachian region.....	32.21	37.43			31.7	46.5		
10. The Ohio River Belt.....	11.35	11.27	16.99	20.97	12.3	22.1	0.7	12.5
11. Southern Interior Plateau.....	28.04	28.32			10.9	37.1		
12. South Mississippi River Belt.....	17.27	21.02			10.8	25.4		
13. North Mississippi River Belt.....	8.87	13.19	6.36	13.36			4.2	13.7
14. Southwest Central region.....	21.14	26.00			21.2	32.7		
15. Central region, plains and prairies.....	16.07	20.76	10.18	8.55	16.5	27.3		
16. The Prairie region.....	11.18	14.81					3.5	10.8
17. Missouri River Belt.....	10.79	13.03	16.95	14.71			7.6	11.4
18. Region of the Western Plains.....	15.47	25.46	17.30	22.10				
19. Heavily-timbered region of the Northwest.....	14.88	12.80					7.6	16.0
20. Cordilleran region.....	18.12	24.01					6.3	3.5
21. Pacific Coast region.....	12.96	30.97	4.62	10.72			7.1	6.2



FIG. 50.—DEATHS FROM HOOPING-COUGH PER 1000 DEATHS FROM KNOWN CAUSES. IN 6 SHADES.

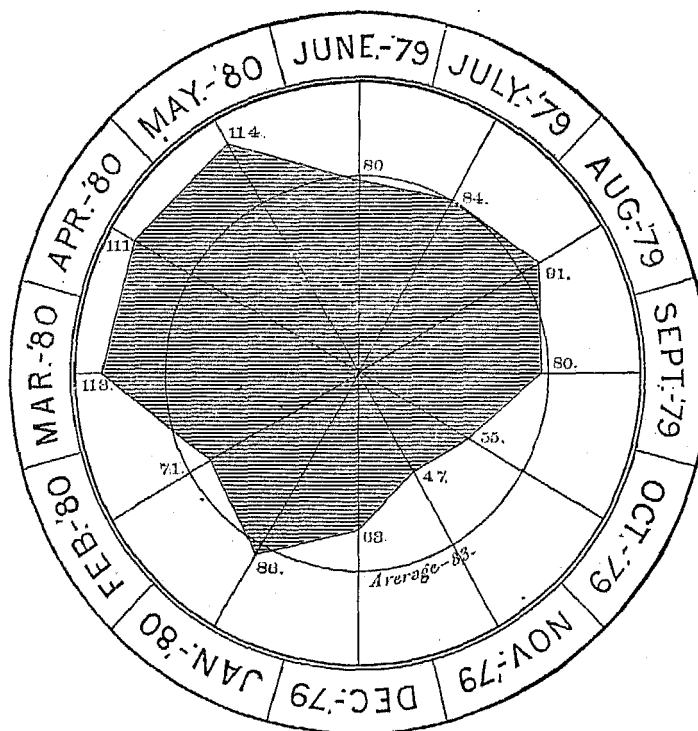


The following table and diagram show for the 31 registration cities the proportion of deaths from whooping-cough occurring in each month. It will be seen that it was most fatal in the months of March, April, and May, and least so from September to December:

TABLE 53.—SHOWING DEATHS FROM HOOPING-COUGH FOR 31 REGISTRATION CITIES, WITH DISTINCTION OF MONTH, AND THE PROPORTION PER 1000 OF ALL DEATHS FOR EACH MONTH.

Months.	DEATHS FROM HOOPING-COUGH.			PER 1000 DEATHS FROM HOOPING-COUGH.		
	Total.	Male.	Female.	Total.	Male.	Female.
Total .....	1,432	620	803	.....	.....	.....
June, 1879 .....	115	47	68	80.80	74.72	84.68
July, 1879 .....	121	47	74	84.50	74.72	92.15
August, 1879 .....	131	64	67	91.41	101.75	83.44
September, 1879 .....	115	50	65	80.80	79.49	80.95
October, 1879 .....	79	29	50	55.17	46.10	62.27
November, 1879 .....	68	29	39	47.40	46.10	48.57
December, 1879 .....	91	28	63	63.55	44.51	78.46
January, 1880 .....	124	56	68	86.59	89.03	84.68
February, 1880 .....	103	47	56	71.93	74.72	69.74
March, 1880 .....	162	84	78	113.13	133.54	97.13
April, 1880 .....	159	67	92	111.03	106.52	114.57
May, 1880 .....	164	81	83	114.52	123.77	108.36

FIG. 51.—DEATHS FROM HOOPING-COUGH, BY MONTHS, IN 31 REGISTRATION CITIES.



## MEASLES.

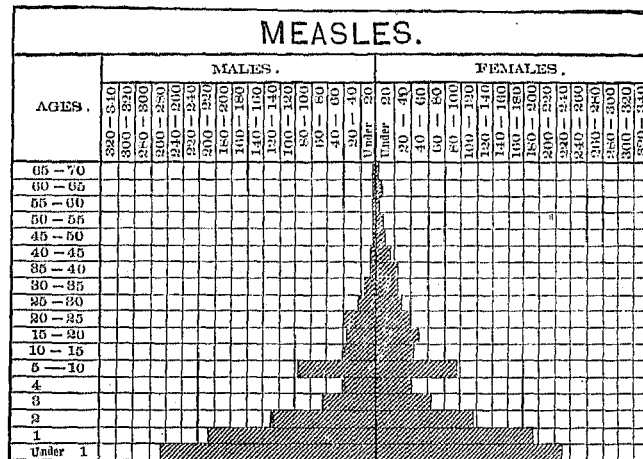
The total number of deaths reported as due to measles during the census year was 8,072, of which 3,980 were of males, and 4,092 of females. In each 100,000 deaths from all causes it caused 1,066 deaths in 1880, 1,876 in 1870, 989 in 1860, and 923 in 1850. In England and Wales, for the 10 years 1870-'79, in each 100,000 deaths from specified causes, it caused 1,700 deaths, and in the year 1880, 2,338 deaths. In each 1,000 deaths from specified causes in the United States during the census year it caused for males 10.69, and for females 11.78. The proportion of deaths per 1,000 of deaths from known causes reported as due to this disease was greater in the rural districts (12.3) than in the cities (7.4), and in those regions where distinctions of white and colored and Irish and German parentage were made the proportions were much greater in the colored (17.7) than in the white (9.1), and greater in the German (8.5) than in the Irish (5.3). The proportionate mortality from this cause was greatest in the Missouri River valley and in the regions of the Western Plains.

The mean age at death of those reported as dying of measles during the census year was 7 years.

The following table and diagram show the relations to age of the deaths from this cause:

TABLE 54.—SHOWING THE NUMBER OF DEATHS FROM MEASLES AT EACH GROUP OF AGES IN EACH 1000 DEATHS REPORTED AS CAUSED BY THIS DISEASE.

Ages.	Males.	Females.	Ages.	Males.	Females.	Ages.	Males.	Females.
Under 1 year.....	267.44	230.64	15-20 years.....	38.28	50.98	60-65 years.....	2.77	5.15
1 year.....	208.26	193.63	20-25 years.....	41.80	40.69	65-70 years.....	2.27	1.72
2 years.....	125.91	117.40	25-30 years.....	22.66	28.43	70-75 years.....	1.26	1.23
3 years.....	68.75	63.73	30-35 years.....	12.84	24.26	75-80 years.....	1.26	0.74
4 years.....	41.80	41.01	35-40 years.....	7.81	24.02	80-85 years.....	0.25	0.25
Total under 5 years..	712.16	647.30	40-45 years.....	7.05	13.24	85-90 years.....	0.25	0.25
5-10 years.....	96.20	98.28	45-50 years.....	4.03	8.09	90-95 years.....	0.25	0.25
10-15 years.....	41.80	43.88	50-55 years.....	4.03	7.11	95 and over.....	0.25	0.25
			55-60 years.....	3.02	4.66	Unknown.....	2.27	2.04

Fig. 52.—DEATHS FROM MEASLES AT CERTAIN GROUPS OF AGE  
IN 1000 DEATHS CAUSED BY THIS DISEASE.

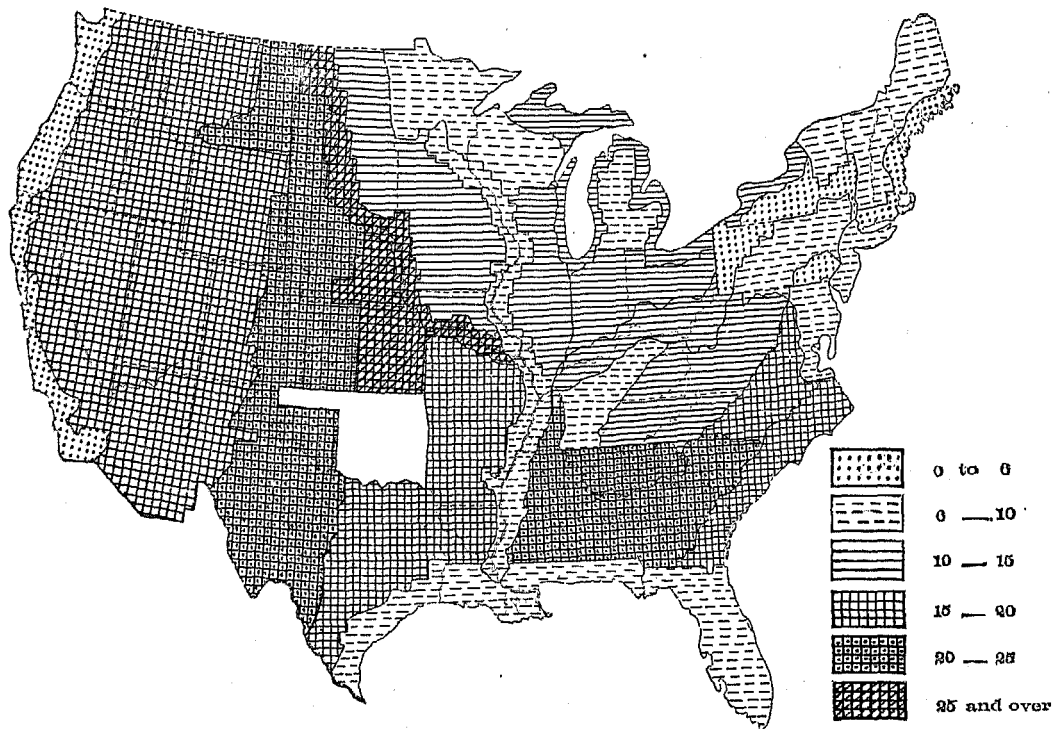
The following table and cartogram indicate, by grand groups, the geographical distribution of the deaths reported as due to measles. It will be seen that the area of its greatest prevalence was in the Missouri River Belt, the Prairie region, and the Southern Interior Plateau:

TABLE 55.—SHOWING FOR RURAL AND CITIES, WITH DISTINCTION OF SEX, AND FOR WHITE AND COLORED, IRISH AND GERMAN PARENTAGE, THE PROPORTION OF DEATHS FROM MEASLES IN 1000 DEATHS FROM KNOWN CAUSES.

Grand Groups.	RURAL.		CITIES.		White.	Colored.	Irish parentage.	German parentage.
	Male.	Female.	Male.	Female.				
Total.....	11.80	12.80	6.00	8.00	9.1	17.7	5.3	8.5
1. North Atlantic Coast region.....	3.72	2.41	2.94	2.40	.....	.....	2.4	1.5
2. Middle Atlantic Coast region.....	7.12	7.97	0.03	6.30	6.3	8.3	6.0	5.3
3. South Atlantic Coast region.....	22.88	19.89	1.19	3.36	14.0	22.6	.....	.....
4. Gulf Coast region.....	4.99	5.86	0.45	18.40	7.1	9.4	.....	.....
5. Northeastern Hills and Plateaus.....	5.23	8.27	2.13	8.05	.....	.....	5.9	.....
6. Central Appalachian region.....	4.85	7.05	9.90	4.04	.....	.....	8.4	2.8
7. Region of the Great Northern Lakes.....	10.28	13.25	11.71	15.44	.....	.....	6.8	10.3
8. The Interior Plateau.....	8.01	8.73	7.00	7.46	6.5	18.3	4.1	4.5
9. Southern Central Appalachian region.....	11.48	13.04	.....	.....	9.4	21.5	.....	.....
10. The Ohio River Belt.....	9.76	12.56	8.07	8.49	9.9	15.4	6.7	12.8
11. Southern Interior Plateau.....	21.20	18.78	.....	.....	11.0	26.7	.....	.....
12. South Mississippi River Belt.....	8.12	3.88	.....	.....	4.4	7.5	.....	.....
13. North Mississippi River Belt.....	10.91	10.39	7.72	7.67	.....	.....	4.2	11.1
14. Southwest Central region.....	15.81	17.30	.....	.....	16.7	14.4	.....	.....
15. Central region, plains and prairies.....	10.55	11.60	7.00	12.12	11.0	10.4	.....	.....
16. The Prairie region.....	17.41	19.00	.....	.....	.....	.....	7.7	11.8
17. Missouri River Belt.....	23.77	28.06	28.25	47.79	.....	.....	5.1	9.6
18. Region of the Western Plains.....	25.04	27.78	17.36	22.10	.....	.....	.....	14.0
19. Heavily-timbered region of the Northwest.....	8.44	6.25	.....	.....	.....	.....	.....	9.0
20. Cordilleran region.....	13.48	24.21	.....	.....	.....	.....	7.9	.....
21. Pacific Coast region.....	4.19	4.07	3.63	5.36	.....	.....	4.8	4.6

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FIG. 53.—DEATHS FROM MEASLES PER 1000 DEATHS FROM KNOWN CAUSES. IN 6 SHADES.



The following diagram shows the distribution of the deaths from measles reported in 31 registration cities with reference to the month of death. It will be seen that by far the greater number of deaths from this cause occurred in the months of February, March, April, and May, 1880, indicating an epidemic prevalence at that period:

FIG. 54.—DEATHS FROM MEASLES, BY MONTHS, IN 31 REGISTRATION CITIES.

